

An Examination of the Montana State Assessments:

- **Part I: Examination of Test Alignment to State Standards**
- **Part II: Short Term Recommendations to Increase Alignment in 2007**
- **Part III: Long Term Recommendations To Increase Alignment in 2008**

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Overview

In the fall of 2006, Northwest Regional Educational Laboratory was asked to:

- examine the draft 2007 state assessment instruments in reading and mathematics for grades 3, 4, 5, 6, 7, 8, and 10 and to conduct an alignment study for those instruments
- consult with Montana OPI and Measured Progress to make recommendations for changes to increase the alignment of the 2007 instruments, and
- provide recommendations for changes in the item selection process to increase the alignment of the 2008 instruments.

The result of those is contained in this three part report.

**Part I: Examination of Test Alignment to State Standards
2006-2007 MontCAS Reading and Math
Grades 3, 4, 5, 6, 7, 8, 10**

Introduction

The purpose of this study was to examine the proposed reading and math instruments developed by Measured Progress for use in the MontCAS to be administered in the 2006-2007 school year. This alignment study examined four criteria adapted from the work of Norman Webb. The criteria included: categorical concurrence, depth-of-knowledge, balance, and range-of-knowledge.

NOTE: The information in Part I of this report describe the results of the alignment study – prior to any adjustment and recommendations being completed.

Webb Alignment Model Criteria

Alignment Criterion #1– Categorical Concurrence:

“The criterion of categorical concurrence between standards and assessment is met if the same or consistent categories of content appear in both” State standards and assessments. The criterion is judged by examining both the assessments and the standards to determine whether in fact the assessment instruments do in fact include items that measure the content of the standards.

(Webb 1999) assumes that if an assessment instrument contains at least six items measuring the content of a standard, that assessment has attained ‘acceptable’ categorical concurrence. Six is considered to be the minimum for an assessment to be considered ‘acceptable.’ For further discussion of Webb’s rationale on this matter, please refer to page 7 of Webb’s Research Monograph No. 18 – Alignment of Science and Mathematics Standards and Assessments in Four States, published by the National Institute for Science Education and the Council of Chief State School Officers in 1999.

Alignment Criterion #2 – Depth-of-Knowledge Consistency:

“Depth-of-Knowledge consistency between standards and assessment indicates alignment if what is elicited from students on the assessment is as demanding cognitively as what students are expected to know and do as stated in the standards.” (Webb, 1999, page 7) This alignment examines the alignment not only between contents of standards and assessments, but also the complexity of knowledge required by each.

Webb 1999 defines an ‘acceptable’ level of consistency being that “at least 50% of the items corresponding to an objective had to be ‘at’ or ‘above’ the level of knowledge of the objective” as a whole. Webb also defines a standard that has between 40% and 50% of its items at or above the depth-of-knowledge of the standard as a whole as having “weakly met” the criteria for Depth-of-Knowledge consistency.

Alignment Criterion #3 – Range-of-Knowledge Correspondence

The third criterion for alignment described by Webb is that of range-of-knowledge or breadth of knowledge. On page 8 of his 1999 monograph, Webb describes this as,

“The range-of-knowledge criterion is used to judge whether a comparable span of knowledge expected of students by a standard is the same as, or corresponds to, the span of knowledge that students need in order to correctly answer the assessment items/activities. The criterion for correspondence between span of knowledge for a standard and the assessment considers the number of objectives within the standards with at least one related assessment item/activity.”

To be ‘acceptable’ according to Webb’s work, at least 50% of the objectives for a standard must have at least one related assessment item/activity.

Alignment Criterion #4 – Balance of Representation

Assessment instruments and standards need to be comparable not only in breadth of knowledge (categorical concurrence) and depth of knowledge (depth-of-knowledge consistency) but also in equal distribution of the knowledge. The criterion of Balance of Representation is used to indicate the extent to which assessment items are evenly distributed across objectives.

For purposes of this study, a less formal method of examining Balance of Representation was used.

Process Description

1. The alignment process was conducted for each area of criteria and for each content area by a minimum of two professional staff with background in instruction, assessment, evaluation, and/or content area expertise. Ratings used in calculating alignment for each of the four criteria described above were determined through consensus. In the Webb model, ratings are determined by averaging the individual rater marks rather than by consensus.
2. NWREL staff examined Montana state standards, benchmark, and grade level expectations materials.
3. The Webb model was modified in this analysis. Previous alignment studies in Montana have focused on alignment of assessment items to state standards and grade level benchmark statements for “end of grade 4,” “end of grade 8,” and “Upon graduation – end of grade 12.”

This alignment study involved instruments for grades 3, 4, 5, 6, 7, 8, and 10. Montana does not have standards or benchmarks for each individual grade level in reading or mathematics. However, they do have grade level expectations (GLEs) for each grade level and each subject. When one examines the GLEs, it is obvious that they are a subset of the benchmarks, identified at each individual grade level, and are representative of all of the state content standards.

Given the fact there are no specific standards or benchmarks for each grade level, and given a desire for this study to have consistency across all the grade level instruments being examined, this alignment study focused on the GLEs. Assessment items were matched to GLEs at each of the grade levels, and these were then aggregated to examine alignment at the content standard levels.

No alignment was attempted at the benchmark level as benchmarks do not exist for all grade levels being examined.

4. Through consensus, a depth-of-knowledge level was determined for each GLE. That level represented the highest level of knowledge expected for that GLE.

5. Raters then examined each assessment item/activity and marked it as a ‘hit’ for each correlating GLE addressed by that item/activity. An individual assessment item/activity was allowed to ‘hit’ more than one GLE. In the Webb model, items are only tabulated as a “hit” for only one standard.
6. Raters determined the depth-of-knowledge level of each individual assessment item/activity. Item depth-of-knowledge level was then compared to the depth-of-knowledge level of the performance GLE. Each item was then classified as being “at,” “above,” or “below” the level of the performance standard as a whole.
7. The percentage of objectives (in this case GLEs) within a standard, being assessed by one or more assessment item/activity was then calculated.
8. A balance-of-representation index was then calculated for each standard is displayed in bar charts. The balance-of-representation examines the extent to which assessment items/activities are evenly distributed across the standards.

Three tables are presented for each grade level for reading and mathematics.

1. The first table provides alignment results for each GLE.
2. The second table describes the alignment between GLEs and content standards for that grade/content area. In some cases, more than one GLE relates to a single content standard.
3. The third table provides the results for Depth-of-Knowledge and Categorical Concurrence for each GLE. The last half of the table presented the results for Depth-of-Knowledge, Categorical Concurrence, and Range-of-Knowledge aggregated to each content standard.

Note on Excluded GLEs

Alignment was not completed for Reading GLEs six and seven (state standard 3) as they are considered “not measurable on statewide assessment.”

Alignment was completed by no recommendations were made with regard to Reading GLE ten which was related to an integrated Cultural GLE strand that has not been fully implemented, and for which there is no state content standard in reading at any grade level.

Grade 3 Reading

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Makes predictions using new material and previous information/experiences.	2	4	75%	YES	NO
2.	Identifies basic main ideas and supporting details.	2	29	79.3%	YES	YES
3.	Decodes unknown words in grade level text using a variety of strategies.	2	42	71.4%	YES	YES
4.	Identifies literary elements and devices in works of literature at grade level	1	3	100%	YES	NO
5.	Uses substantial reading vocabulary appropriate to grade level	2	38	71.1%	YES	YES
6.*	Applies, articulates, and self monitors decoding and comprehension strategies— not measurable on statewide assessment.	3				
7.*	Sets appropriate reading goals – not measurable on statewide assessment.	2				
8.	Identifies a variety of purposes for reading and selects appropriate print and non print materials	2	4	100%	YES	NO
9.	Recognizes an author's point of view.	1	0	0%	NO	NO
10.**	Recognizes cultural differences including	2	1	100%	YES	NO

	American Indians in various materials.					
11.	Compares and integrates information from two sources.	2	1	100%	YES	NO

Cross Reference – Montana Reading GLEs and Content Standards

Grade Level Expectation	Montana Content Standard	Notes
1,2	1	
3,4,5	2	
6,7	3	* GLEs not measurable on statewide assessment
8	4	
9, 11	5	
10		** Integrated Cultural GLE, not in Content Standards

Grade 3 Reading

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	No	
5	Yes	Yes	
6 *	*	*	
7 *	*	*	
8	Yes	No	
9	No	No	
10 **	Yes	No	
11	Yes	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3*	*	*	*
4	Yes	No	Yes
5	Yes	No	Yes

* Not measurable for state assessment.

** Cultural awareness standard, not fully implemented and not assessed.

Grade 4 Reading

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Makes predictions and connections between new material and previous information/experiences.	2	1	100%	YES	NO
2.	Demonstrates a basic understanding of main ideas and supporting details.	2	28	96.4%	YES	YES
3.	Decodes unknown words in grade level text using a variety of strategies .	2	49	67.3%	YES	YES
4.	Identifies literary elements and devices in works of literature at grade level.	1	7	100%	YES	YES
5.	Uses a substantial reading vocabulary appropriate to grade level	2	52	69.2%	YES	YES
6.*	Applies, articulates, and self monitors decoding and comprehension strategies not measurable on statewide assessment.	3				
7.*	Sets appropriate reading goals – not measurable on statewide assessment.	2				

8.	Selects and uses appropriate print and non print materials to meet a variety of purposes at grade level (e.g., signs, labels, instructions, recipes, directions, schedules, maps, tables, charts).	2	7	57.1%	YES	YES
9.	Recognizes an author's point of view and can distinguish fact from opinion.	2	1	100%	YES	NO
10.**	Recognizes cultural differences including American Indians in various materials.	1	2	100%	YES	NO
11.	Compares and integrates information from more than two sources.	2	0	0%	NO	NO

* *Not measurable for state assessment.*

** *Cultural awareness standard, not fully implemented and not assessed.*

Cross Reference – Montana Reading GLEs and Content Standards

Grade Level Expectation	Montana Content Standard	Notes
1,2	1	
3,4,5	2	
6,7	3	* GLEs not measurable on statewide assessment
8	4	
9, 11	5	
10		** Integrated Cultural GLE,

		not in Content Standards
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Grade 4 Reading

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	Yes	
5	Yes	Yes	
6 *	X	X	
7 *	X	X	
8	Yes	Yes	
9	Yes	No	
10 **	Yes	No	
11	No	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3*	X	X	X
4	Yes	Yes	Yes
5	Yes	No	No

Grade 5 Reading

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Makes predictions and describes connections between new materials and previous information/experience.	3	18	11.1%	NO	YES
2.	Summarizes the main idea and details from materials read.	2	11	100%	YES	YES
3.	Decodes unknown words in grade level text and applies a variety of strategies when reading literature and content area material.	2	53	73.6%	YES	YES
4.	Identifies and compares literary elements and devices in works of literature at grade level.	2	12	67%	YES	YES
5.	Uses a substantial reading vocabulary appropriate to grade level.	2	53	73.6%	YES	YES
6.*	Applies, articulates, and self-monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment.	3				
7.*	Sets and meets appropriate reading goals – not measurable on statewide assessment.	2				
8.	Selects and uses appropriate	2	3	33%	NO	NO

	reading material to meet a variety of purposes at grade level.					
9.	Recognizes an author's point of view and purpose and can distinguish fact from opinion.	2	5	100%	YES	NO
10.**	Identifies cultural perspectives of diverse populations including American Indians in various materials.	1	0	0%	NO	NO
11.	Compares and integrates information from a variety of sources	2	0	0%	NO	NO

* *Not measurable for state assessment.*

** *Cultural awareness standard, not fully implemented and not assessed.*

Cross Reference – Montana Reading GLEs and Content Standards

Grade Level Expectation	Montana Content Standard	Notes
1,2	1	
3,4,5	2	
6,7	3	* GLEs not measurable on statewide assessment
8	4	
9, 11	5	
10		** Integrated Cultural GLE, not in Content Standards

Grade 5 Reading

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	No	Yes	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	Yes	
5	Yes	Yes	
6 *	X	X	
7 *	X	X	
8	No	No	
9	Yes	No	
10 **	No	No	
11	No	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	No	Yes	Yes
2	Yes	Yes	Yes
3*	X	X	X
4	No	No	Yes
5	Yes	No	Yes

Grade 6 Reading

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Makes predictions and describes connections between new materials and previous information/experience.	3	6	16.7%	NO	YES
2.	Identifies inferred and stated main ideas and selects important facts and details from materials read.	2	23	100%	YES	YES
3.	Decodes unknown words in grade level text and applies a variety of strategies when reading literature and content area material.	2	53	71.7%	YES	YES
4.	Identifies and compares literary elements and devices in works of literature at grade level.	2	5	100%	YES	NO
5.	Uses a substantial reading vocabulary appropriate to grade level.	2	53	71.7%	YES	YES
6.*	Applies, articulates, and self monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment.	3				
7.*	Sets and meets appropriate reading goals – not measurable on statewide assessment.	2				

8.	Selects and uses appropriate reading materials to meet a variety of purposes at grade level.	3	2	50%	YES	NO
9.	Recognizes an author's point of view and purpose and identifies some literary devices that authors use in composing text.	1	4	100%	YES	NO
10.**	Identifies cultural perspectives of diverse populations including American Indians in various materials.	1	0	0%	NO	NO
11.	Compares and integrates information from a variety of print and non print sources	2	0	0%	NO	NO

* *Not measurable for state assessment.*

** *Cultural awareness standard, not fully implemented and not assessed.*

Cross Reference – Montana Reading GLEs and Content Standards

Grade Level Expectation	Montana Content Standard	Notes
1,2	1	
3,4,5	2	
6,7	3	* GLEs not measurable on statewide assessment
8	4	
9, 11	5	
10		** Integrated Cultural GLE,

		not in Content Standards
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Grade 6 Reading

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	No	Yes	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	No	
5	Yes	Yes	
6 *	X	X	
7 *	X	X	
8	Yes	No	
9	Yes	No	
10 **	No	No	
11	No	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3*	X	X	X
4	Yes	No	Yes
5	Yes	No	Yes

Grade 7 Reading

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Makes predictions and clearly describes, with details, connections between new materials and previous information/experience.	3	1	100%	YES	NO
2.	Interprets stated and inferred main ideas, and identifies important supporting details when reading material appropriate to the grade level.	2	30	93.3%	YES	YES
3.	Decodes unknown words in grade level text and applies a variety of strategies when reading literature and content area material.	2	54	68.5%	YES	YES
4.	Interprets and compares literary elements and devices in works of literature at grade level.	2	2	50%	YES	NO
5.	Uses a substantial reading vocabulary appropriate to grade level.	2	54	68.5%	YES	YES
6.*	Applies, articulates, and self monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment.	3				

7.*	Sets and meets appropriate reading goals – not measurable on statewide assessment.	2				
8.	Selects and uses appropriate material to meet a variety of reading purposes at grade level.	3	1	0%	NO	NO
9.	Recognizes an author's point of view and purpose and identifies some literary devices that author used to influence readers..	1	3	100%	YES	NO
10.**	Identifies cultural perspectives of diverse populations including American Indians in various materials.	1	0	0%	NO	NO
11.	Compares, contrasts and integrates information from a variety of print and non print sources	3	0	0%	NO	NO

* *Not measurable for state assessment.*

** *Cultural awareness standard, not fully implemented and not assessed.*

Cross Reference – Montana Reading GLEs and Content Standards

Grade Level Expectation	Montana Content Standard	Notes
1,2	1	
3,4,5	2	
6,7	3	* GLEs not measurable on statewide assessment
8	4	
9, 11	5	
10		** Integrated Cultural GLE, not in Content Standards

Grade 7 Reading

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	No	
5	Yes	Yes	
6 *	X	X	
7 *	X	X	
8	No	No	
9	Yes	Yes	
10 **	No	No	
11	No	No	

Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3*	X	X	X
4	No	No	No
5	Yes	No	No

Grade 8 Reading

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Makes predictions and clearly describes, with details, meaningful connections between new materials and previous information/experience.	3	0	0%	NO	NO
2.	Interprets stated and inferred main ideas, and identifies important supporting facts and details when reading material appropriate to grade level.	2	35	94.3%	YES	YES
3.	Decodes unknown words in grade level text and applies a variety of strategies when reading literature and content area material.	2	56	73.2%	YES	YES
4.	Interprets and analyzes literary elements and devices in works of literature at grade level.	3	1	100%	YES	NO
5.	Uses a substantial reading vocabulary appropriate to grade level.	2	56	73.2%	YES	YES
6.*	Applies, articulates, and self monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment.	3				

7.*	Sets and meets appropriate reading goals – not measurable on statewide assessment.	2				
8.	Selects and uses appropriate print and non print material to meet a variety of reading purposes (e.g., to organize and understand information, to investigate a topic, to apply information to perform specific tasks).	3	3	0%	NO	NO
9.	Recognizes an author's point of view and purpose and identifies use of language and literary devices used to influence readers.	2	13	100%	YES	YES
10.**	Identifies and interprets social responsibilities and cultural perspectives of diverse populations including American Indians in various materials.	3	0	0%	NO	NO
11.	Compares, contrasts and integrates information from a variety of print and non print sources to defend a point of view.	3	0	0%	NO	NO

* *Not measurable for state assessment.*

** *Cultural awareness standard, not fully implemented and not assessed.*

Cross Reference – Montana Reading GLEs and Content Standards

Grade Level Expectation	Montana Content Standard	Notes
1,2	1	
3,4,5	2	
6,7	3	* GLEs not measurable on statewide assessment
8	4	
9, 11	5	
10		** Integrated Cultural GLE, not in Content Standards

Grade 8 Reading

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	No	No	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	No	
5	Yes	Yes	
6 *	X	X	
7 *	X	X	
8	No	No	
9	Yes	Yes	
10 **	No	No	
11	No	No	

Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3*	X	X	X
4	No	No	Yes
5	Yes	No	Yes

Grade 10 Reading

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Makes and revises predictions and identifies connections within material and between material and previous information/experiences.	3	1	100%	YES	NO
2.	Paraphrases stated and inferred main ideas, identifies supporting evidence and responds using a variety of modes	2	13	100%	YES	YES
3.	Applies decoding strategies to understand grade level text.	2	58	75.8%	YES	YES
4.	Applies a few strategies to interpret, analyze and evaluate the language, literary elements, literary devices, and overall intent of print and non print material.	3	18	100%	YES	YES
5.	Uses a substantial reading vocabulary appropriate to grade level.	2	64	68.75%	YES	YES
6.*	Articulates and evaluates the strategies used to monitor reading—not measurable on statewide assessment.	3				
7.*	Sets, evaluates and often meets appropriate reading goals – not measurable on statewide assessment.	3				
8.	Selects, evaluates, compares, analyzes, and uses appropriate print and non print material to meet a variety of reading purposes (e.g., reference material,	3	11	100%	YES	YES

	pamphlets, electronic information, schedules, maps, technical manuals).					
9.	Recognizes author's point of view and purpose. Analyzes and evaluates evidence, logic, language, bias and other strategies used to influence readers.	3	7	17%	NO	YES
10.**	Analyzes and evaluates and creates materials that demonstrate social responsibilities and cultural perspectives of diverse populations including American Indians.	4	1	100%	YES	NO
11.	Logically gathers, analyzes, synthesizes and responds to information from a variety of sources	3	0	0%	NO	NO

* *Not measurable for state assessment.*

** *Cultural awareness standard, not fully implemented and not assessed.*

Cross Reference – Montana Reading GLEs and Content Standards

Grade Level Expectation	Montana Content Standard	Notes
1,2	1	
3,4,5	2	
6,7	3	* GLEs not measurable on statewide assessment
8	4	
9, 11	5	
10		** Integrated Cultural GLE, not in Content Standards

Grade 10 Reading

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	Yes	
5	Yes	Yes	
6 *	X	X	
7 *	X	X	
8	Yes	Yes	
9	No	Yes	
10 **	Yes	No	
11	No	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3*	X	X	X
4	Yes	Yes	Yes
5	No	Yes	Yes

Grade 3 Mathematics

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Selects and uses appropriate problem solving strategies (e.g., estimate, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator) in many contexts.	2	18	83.3%	YES	YES
2.	Communicates solutions to problems in a variety of ways (e.g. concrete, pictorial, graphical).	2	16	75%	YES	YES
3.	Uses addition, subtraction, and multiplication of whole numbers to estimate, compute, and determine whether results are accurate.	2	28	75%	YES	YES
4.	Selects and solves number sentences (with boxes or letters) that represent simple real world addition or subtraction situations	1	9	100%	YES	YES
5.	Identifies two and three dimensional shapes.	1	8	100%	YES	YES
6.	Identifies measurable attributes of objects (e.g., length, time), and selects and uses appropriate tools to measure them.	1	9	100%	YES	YES
7.	Draws appropriate conclusions	3	13	7.7%	NO	YES

	(makes interpretations) using data.					
8.	Identifies a variety of patterns and states the next term in the pattern.	1	1	100%	YES	NO

Cross Reference – Montana Mathematics GLEs and Content Standards

Grade Level Expectation	Montana Content Standard
1,2	1
3	2
4	3
5	4
6	5
7	6
8	7

Grade 3 Mathematics

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	Yes	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	Yes	
5	Yes	Yes	
6	Yes	Yes	
7	No	Yes	
8	Yes	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	No	Yes	Yes
7	Yes	No	Yes

Grade 4 Mathematics

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Selects and uses appropriate problem solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer) in many contexts.	2	15	73.3%	YES	YES
2.	Communicates solutions to problems in a variety of ways (e.g., written, verbal, concrete, pictorial, graphical, algebraic).	2	15	73.3%	YES	YES
3.	Uses addition, subtraction, multiplication, and division of whole numbers to estimate, compute, and determine whether results are accurate.	2	34	64.7%	YES	YES
4.	Applies basic algebra concepts using concrete and symbolic representations (e.g., number sentences with boxes or letters) and communicates relationships in a variety of ways.	2	6	50%	YES	YES
5.	Identifies two and three dimensional shapes and accurately uses relationships among shapes (e.g., combinations, subdivisions, symmetry, congruence, position)	1	11	100%	YES	YES

	to solve problems in the physical world.					
6.	Identifies measurable attributes of objects (e.g., length, capacity, weight, mass, area, volume, time, temperature), and selects and uses appropriate tools to measure them.	1	7	100%	YES	YES
7.	Predicts and makes appropriate decisions using data (e.g., collects, organizes, constructs displays [including graphs], and interprets) to solve problems.	2	9	77.7%	YES	YES
8.	Uses a variety of patterns to describe mathematical and real world relationships.	3	4	25%	NO	NO

Cross Reference – Montana Mathematics GLEs and Content Standards

Grade Level Expectation	Montana Content Standard
1,2	1
3	2
4	3
5	4
6	5
7	6
8	7

Grade 4 Mathematics

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	Yes	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	Yes	
5	Yes	Yes	
6	Yes	Yes	
7	Yes	Yes	
8	No	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	No	No	Yes

Grade 5 Mathematics

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Selects and uses appropriate problem solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer) in many contexts.	2	10	100%	Yes	Yes
2.	Communicates organized solutions to problems in a variety of ways (e.g. written, verbal, concrete, pictorial, graphical, algebraic).	2	6	100%	Yes	Yes
3.	Uses addition, subtraction, multiplication, and division of whole numbers and decimals to estimate, compute, and determine whether results are accurate and reasonable. Uses part/whole relationships in everyday situations.	2	34	88.2%	Yes	Yes
4.	Applies basic algebraic concepts and communicates different representations of the same relationship (e.g., number sentence, picture).	2	6	100%	Yes	Yes
5.	Identifies shapes and	2	11	63.6%	Yes	Yes

	accurately uses relationships among shapes (e.g., combinations, subdivisions, symmetry, congruence, position) to solve problems in the physical world					
6.	Selects appropriate units for measurements, including square and cubic units.	2	7	85.7%	Yes	Yes
7.	Predicts and makes appropriate decisions using data (e.g., collects, organizes, graphs, and interprets data).	2	14	78.6%	Yes	Yes
8.	Uses and analyzes a variety of patterns to describe mathematical and real world relationships in various ways.	2	6	100%	Yes	Yes

Cross Reference – Montana Mathematics GLEs and Content Standards

Grade Level Expectation	Montana Content Standard
1,2	1
3	2
4	3
5	4
6	5
7	6
8	7

Grade 5 Mathematics

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	Yes	
2	Yes	Yes	
3	Yes	Yes	
4	Yes	Yes	
5	Yes	Yes	
6	Yes	Yes	
7	Yes	Yes	
8	Yes	Yes	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	Yes	Yes	Yes

Grade 6 Mathematics

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Selects and uses appropriate problem-solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer) in many contexts.	2	1	100%	Yes	No
2.	Communicates organized solutions to problems in a variety of ways (e.g. written, verbal, concrete, pictorial, graphical, algebraic) and provides appropriate support (e.g., reasons, rationales).	3	3	100%	Yes	No
3.	Uses addition, subtraction, multiplication, and division of whole numbers, decimals, and fractions to estimate and compute, and to determine whether results are accurate and reasonable.	2	22	68%	Yes	Yes
4.	Uses basic algebraic concepts and represents relationships in appropriate ways (e.g., number sentence, picture, graph) to solve selected problems.	2	6	100%	Yes	Yes
5.	Applies geometric relationships (e.g., symmetry, congruence,	3	9	0%	No	Yes

	position) to solve selected problems.					
6.	Performs conversions among basic units within a system of measurement and determines the areas of geometric figures.	2	10	70%	Yes	Yes
7.	Makes reasonable predictions based on data, basic probability, and statistics (e.g., tables, charts, graphs).	2	10	100%	Yes	Yes
8.	Uses and analyzes a variety of patterns to describe mathematical and real-world relationships in various ways.	3	7	0%	No	Yes

Cross Reference – Montana Mathematics GLEs and Content Standards

Grade Level Expectation	Montana Content Standard
1,2	1
3	2
4	3
5	4
6	5
7	6
8	7

Grade 6 Mathematics

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	Yes	No	
3	Yes	Yes	
4	Yes	Yes	
5	No	Yes	
6	Yes	Yes	
7	Yes	Yes	
8	No	Yes	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	No	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	No	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	No	Yes	Yes

Grade 7 Mathematics

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Selects and uses appropriate problem-solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer, data collection devices) in many contexts.	2	3	100%	Yes	No
2.	Communicates organized solutions to problems in a variety of ways (e.g. written, verbal, concrete, pictorial, graphical, algebraic) and provides appropriate support (reasons, rationales).	3	4	100%	Yes	No
3.	Uses rational numbers, proportions, and percents to solve problems.	2	17	76%	Yes	Yes
4.	Uses basic algebraic concepts and represents relationships in appropriate ways (e.g., number sentence, picture, graph) to solve real-world problems.	2	14	100%	Yes	Yes
5.	Applies geometric relationships such as coordinates and transformations to solve selected problems.	3	15	27%	No	Yes
6.	Uses formulas to determine	2	2	100%	Yes	No

	areas and volumes.					
7.	Makes reasonable predictions based on data, basic probability, and statistics (e.g., tables, charts, graphs).	2	12	100%	Yes	Yes
8.	Analyzes and describes patterns and functions using various representations (e.g., tables, graphs, verbal rules).	3	11	0%	No	Yes

Cross Reference – Montana Mathematics GLEs and Content Standards

Grade Level Expectation	Montana Content Standard
1,2	1
3	2
4	3
5	4
6	5
7	6
8	7

Grade 7 Mathematics

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	Yes	No	
3	Yes	Yes	
4	Yes	Yes	
5	No	Yes	
6	Yes	No	
7	Yes	Yes	
8	No	Yes	
Standard			Range of Knowledge (1 item for at least 50% of

			the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	No	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	No	Yes	Yes

Grade 8 Mathematics

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Selects and uses appropriate processes (e.g., estimation, multiple steps) and technologies (e.g., paper and pencil, calculator, computer, data collection devices) in many contexts.	2	5	100%	YES	NO
2.	Formulates and communicates logical arguments using appropriate mathematical ideas (e.g. mathematical terms, notations).	3	4	25%	NO	NO
3.	Uses rational numbers and proportionality (e.g., ratio, proportion, percent) to represent and solve problems, and determine whether results are accurate.	2	16	62.5%	YES	YES
4.	Uses algebra concepts (e.g., variable) and methods (e.g., equation, graph) to represent and solve real world problems.	2	10	90%	YES	YES
5.	Uses geometric relationships (e.g., the Pythagorean Theorem) and properties (e.g., plane, solid) to solve real world problems.	2	14	71%	YES	YES
6.	Uses complex measurement (e.g., units and tools at appropriate level	2	9	88.8%	YES	YES

	of accuracy, rates and other derived measures) to describe the physical world and solve real world problems.					
7.	Makes reasonable predictions and decisions using data, basic probability, and statistics (e.g., tables, charts, graphs, measures of central tendency), collect, organize, and describe data.	2	10	80%	YES	YES
8.	Analyzes and describes functional relationships and their representations (e.g., tables, graphs, verbal rules, algebraic equations).	2	10	90%	YES	YES

Cross Reference – Montana Mathematics GLEs and Content Standards

Grade Level Expectation	Montana Content Standard
1,2	1
3	2
4	3
5	4
6	5
7	6
8	7

Grade 8 Mathematics

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	No	No	
3	Yes	Yes	
4	Yes	Yes	
5	Yes	Yes	
6	Yes	Yes	
7	Yes	Yes	
8	Yes	Yes	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	Yes	Yes	Yes

Grade 10 Mathematics

	GLE	Depth of Knowledge For GLE	Total Number of Items For GLE	Percent of Items “At or Above” Depth of Knowledge Level	Meets Depth of Knowledge Test (at least 50% of items at or above DK for GLE)	Meets Categorical Concurrence Test (at least 6 items per GLE)
1.	Selects and uses appropriate processes (e.g., estimation, multiple steps) and technologies (e.g., paper and pencil, calculator, computer, data collection devices) to solve a variety of problems within and outside mathematics and communicates the results.	3	4	66.7%	YES	NO
2.	Formulates and communicates logical arguments using appropriate mathematical ideas (e.g. mathematical terms, notations, generalizations) and reasoning.	3	1	100%	YES	NO
3.	Uses real and complex numbers systems to solve mathematical problems.	2	18	72.2%	YES	YES
4.	Applies functions, graphs, and algebraic concepts to solve real world problems .	3	17	0%	NO	YES
5.	Applies geometric relationships (e.g., the Pythagorean Theorem) and properties (e.g., congruence,	3	20	0%	NO	YES

	similarity) to model a variety of problems and situations.					
6.	Applies complex measurement (e.g., derived measures, indirect measures) to describe and compare and contrast objects in the physical world and solve real world problems.	3	9	11.1%	NO	YES
7.	Makes reasonable predictions and decisions using data, basic probability, and statistics (e.g., tables, graphs, measures of central tendency, variability, correlation, sampling).	3	10	10%	NO	YES
8.	Analyzes functions using graphical, numerical, and algebraic methods.	3	10	10%	NO	YES

Cross Reference – Montana Mathematics GLEs and Content Standards

Grade Level Expectation	Montana Content Standard
1,2	1
3	2
4	3
5	4
6	5
7	6
8	7

Grade 10 Mathematics

GLE	Depth of Knowledge (50% of items at or above DK of GLE)	Categorical Concurrence (6 or more items aligned to GLE or Standard)	
1	Yes	No	
2	Yes	No	
3	Yes	Yes	
4	No	Yes	
5	No	Yes	
6	No	Yes	
7	No	Yes	
8	No	No	
Standard			Range of Knowledge (1 item for at least 50% of the GLEs for each standard)
1	Yes	No	Yes
2	Yes	Yes	Yes
3	No	Yes	Yes
4	No	Yes	Yes
5	No	Yes	Yes
6	No	Yes	Yes
7	No	Yes	Yes

Balance of Representation

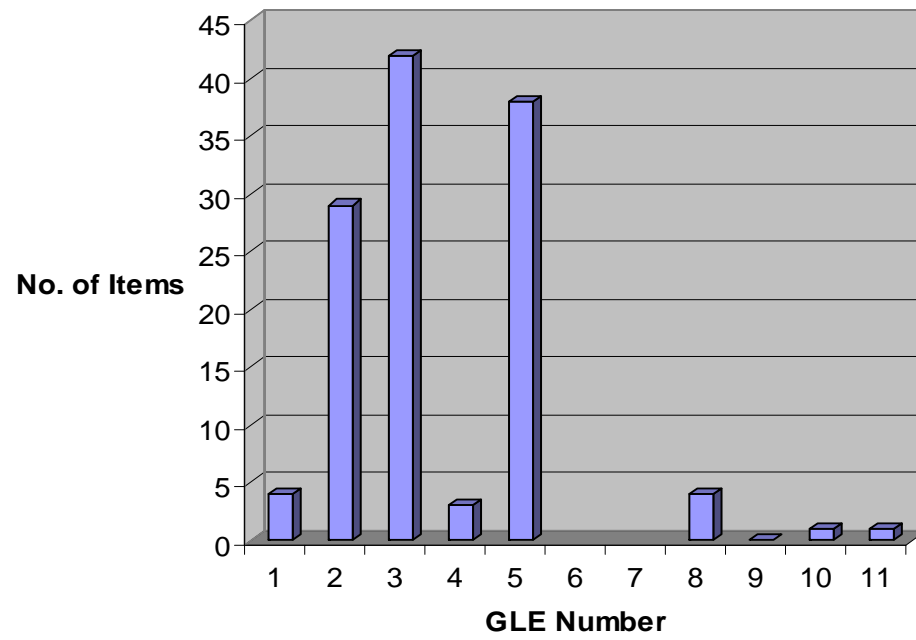
Balance of Representation in Norman Webb's model is based on a calculation designed to describe how evenly items are balanced across the various standards. .

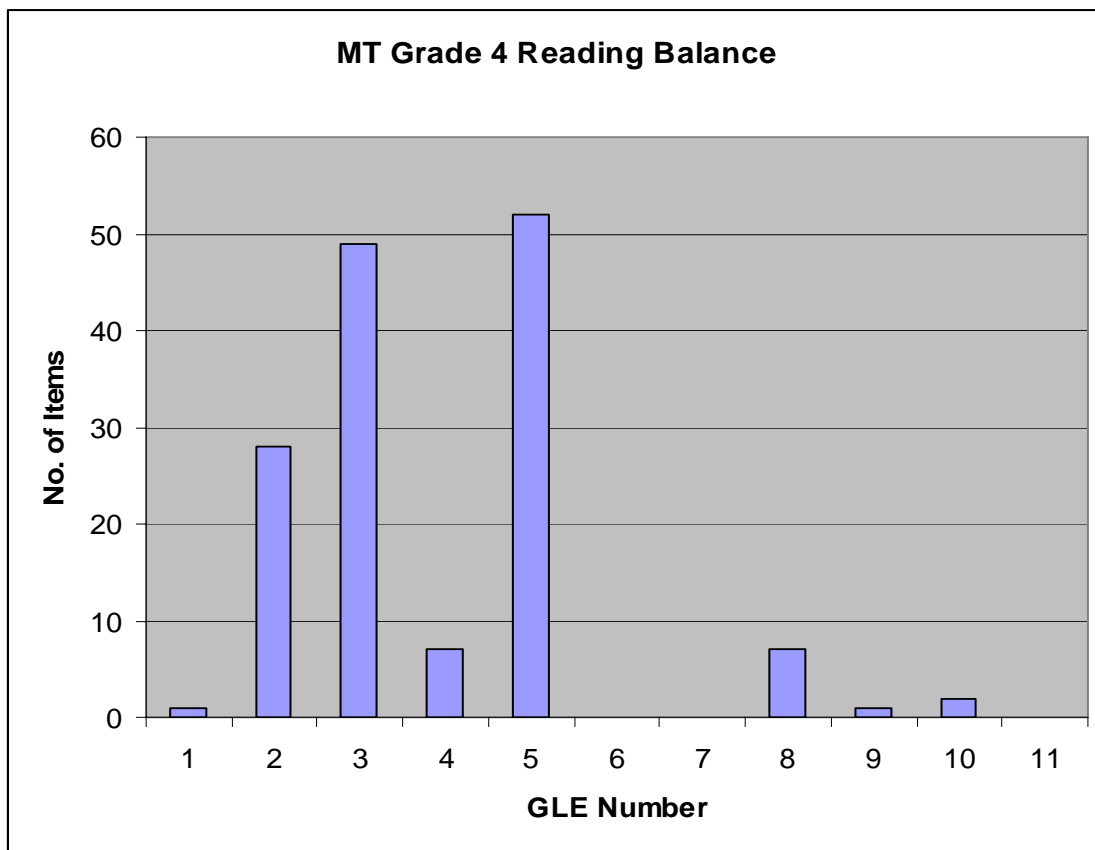
This calculation was not undertaken for the following reasons:

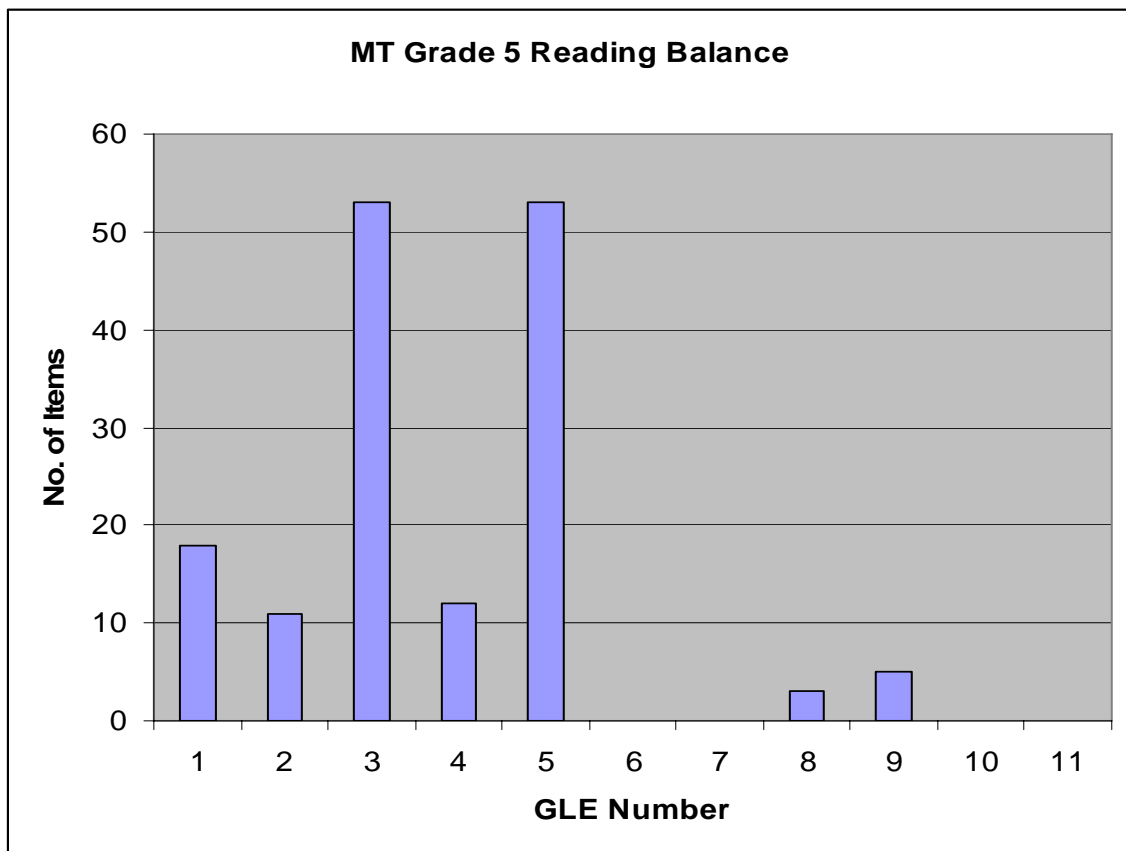
1. Montana does not have specific standards for each grade level.
2. The Montana Grade Level Expectations are not unique for each grade level.
3. Grade level expectations are not directly related to all state standards or the cumulative benchmarks under those standards. In fact only a portion of the cumulative benchmarks are included in the grade level benchmarks.
4. There is some indication that Montana does not consider all standards to be of equal weight.
5. The most immediate need to achieve better alignment was related to Depth of Knowledge and Categorical Concurrence.
6. Not all GLEs/Standards are appropriate for measurement on the state assessment.
7. There is not a clear connection between state standards, state benchmarks, and grade level expectations.

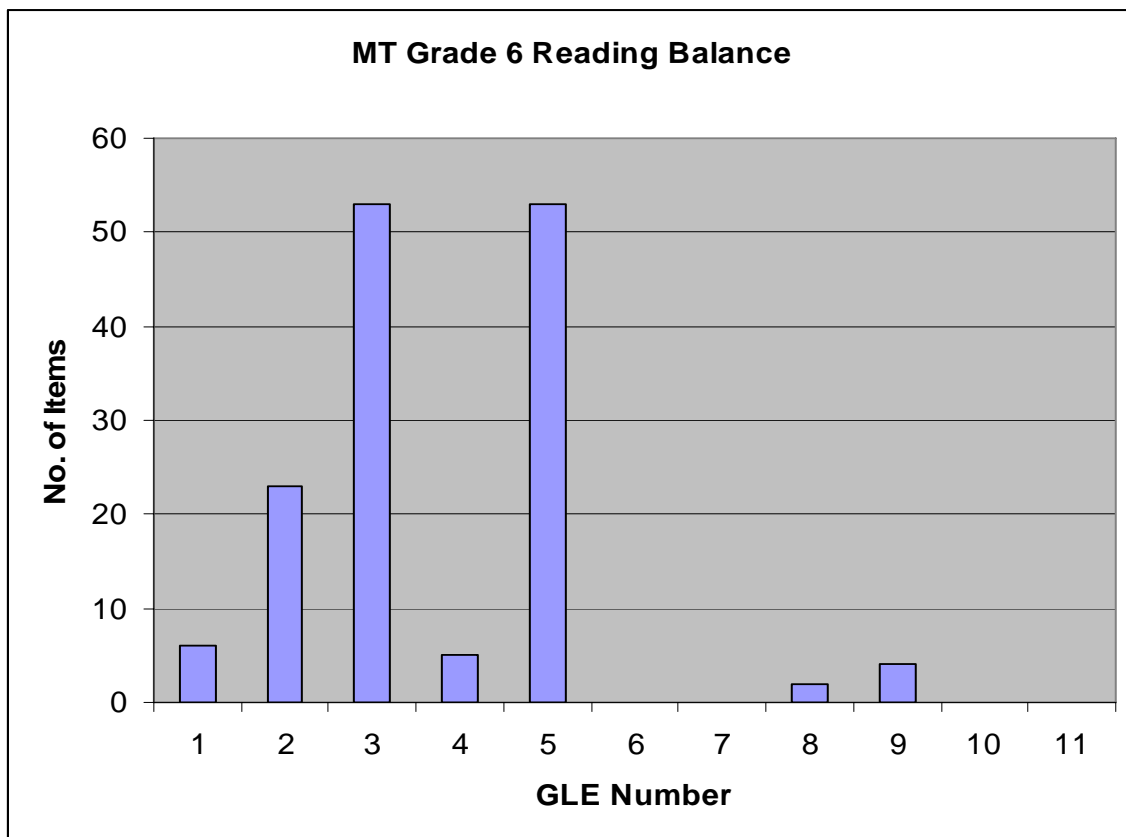
The following graphs are intended to give a depiction of the balance of items across Grade Level Expectations. Information from Grade Level Expectations can be aggregated to examine balance across standards, but will continue to show imbalance

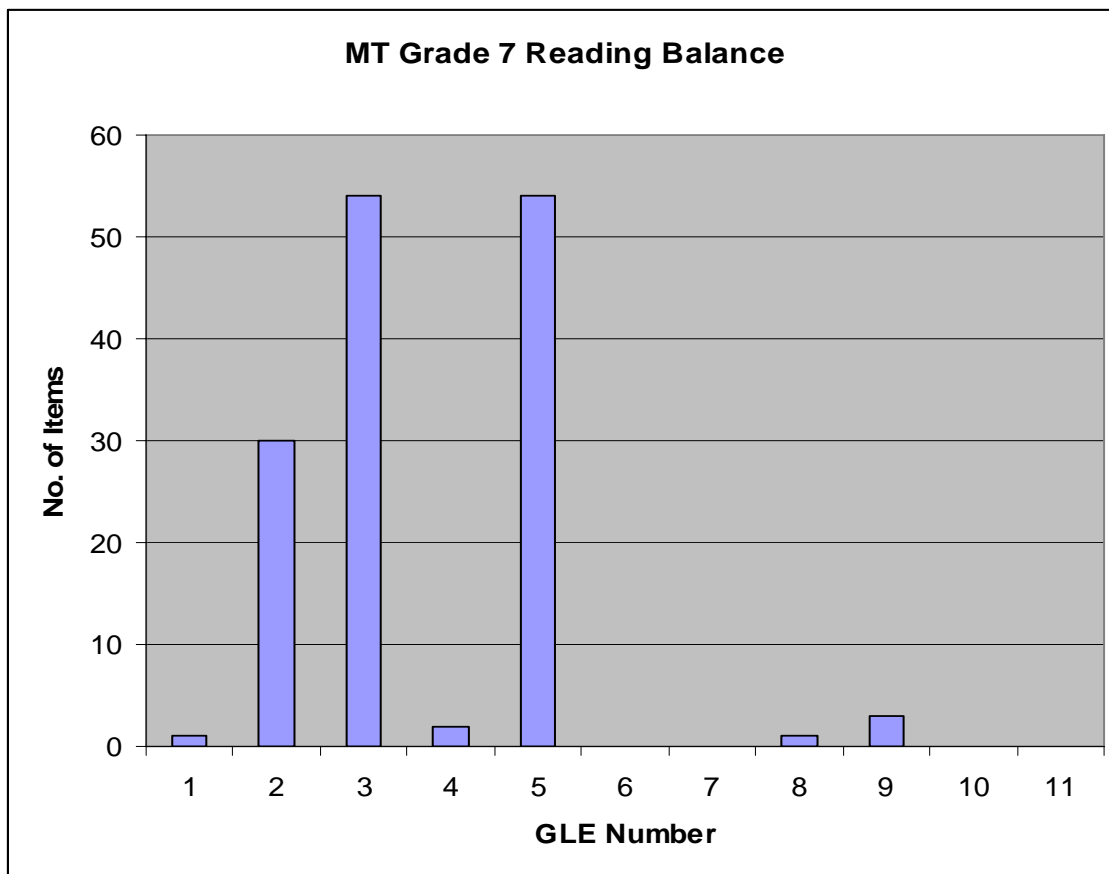
MT Grade 3 Reading Balance

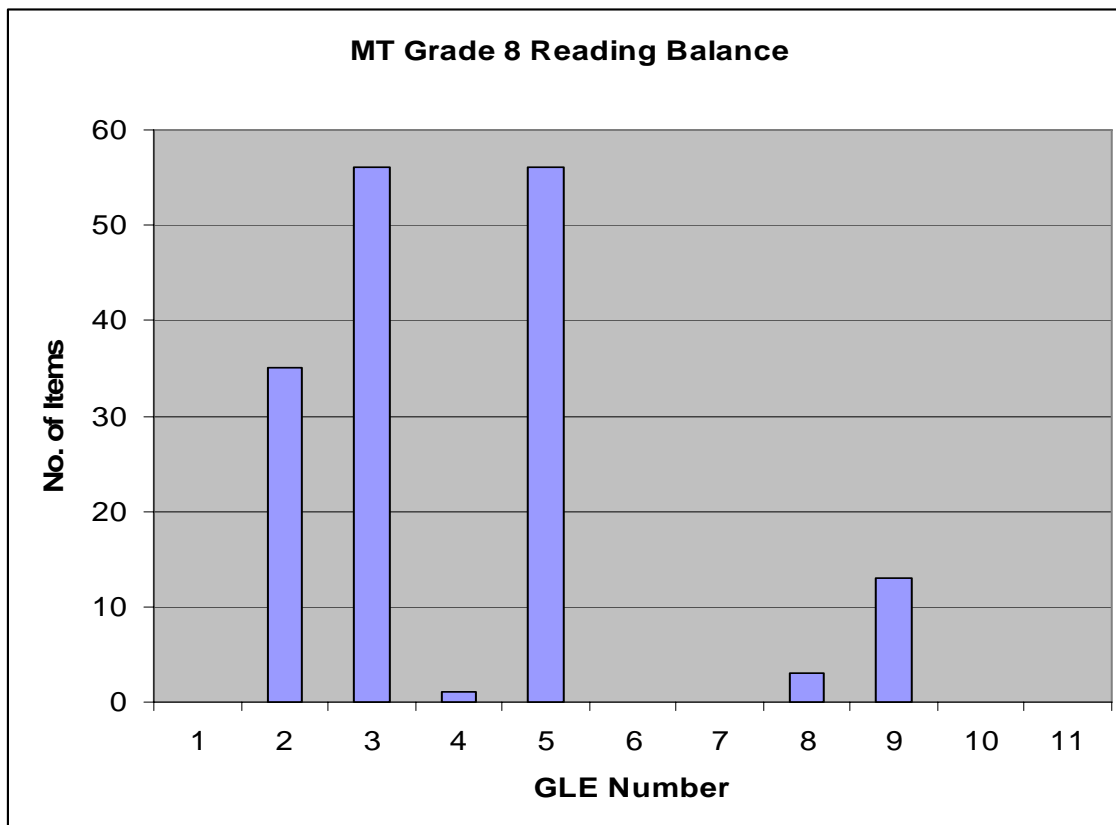


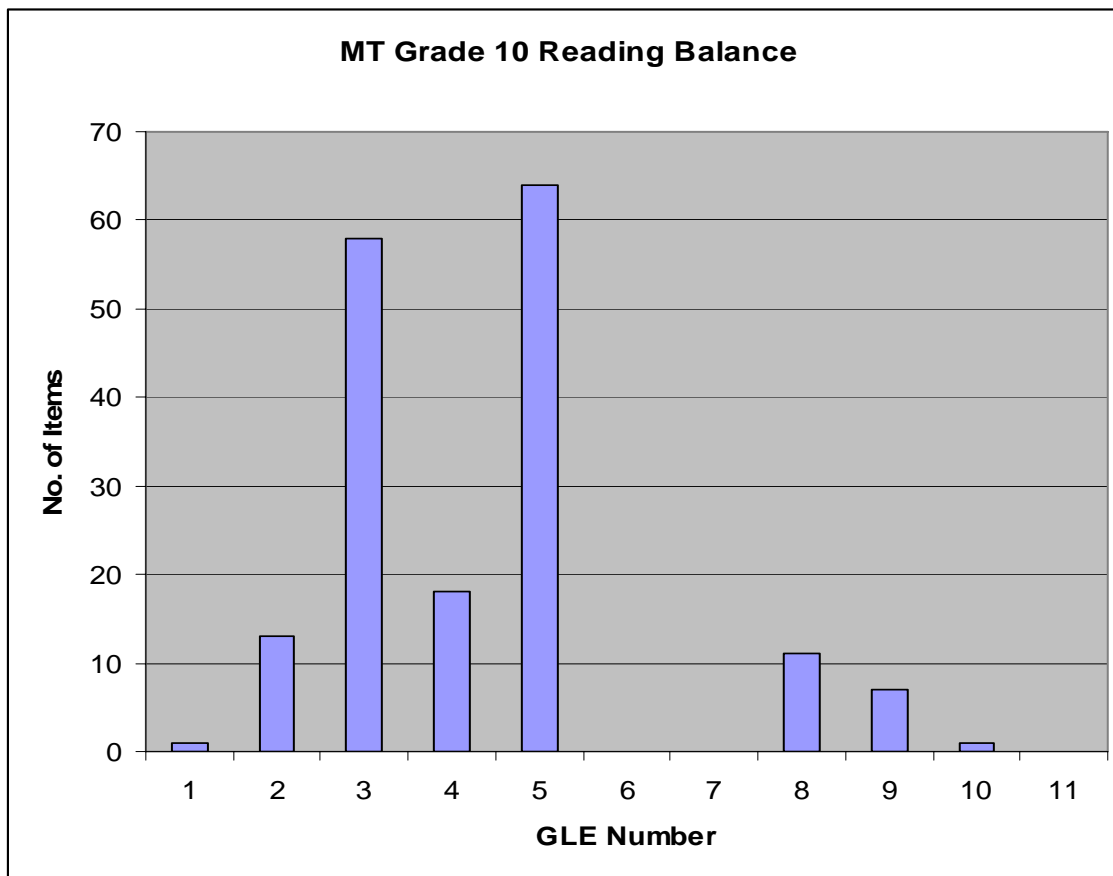


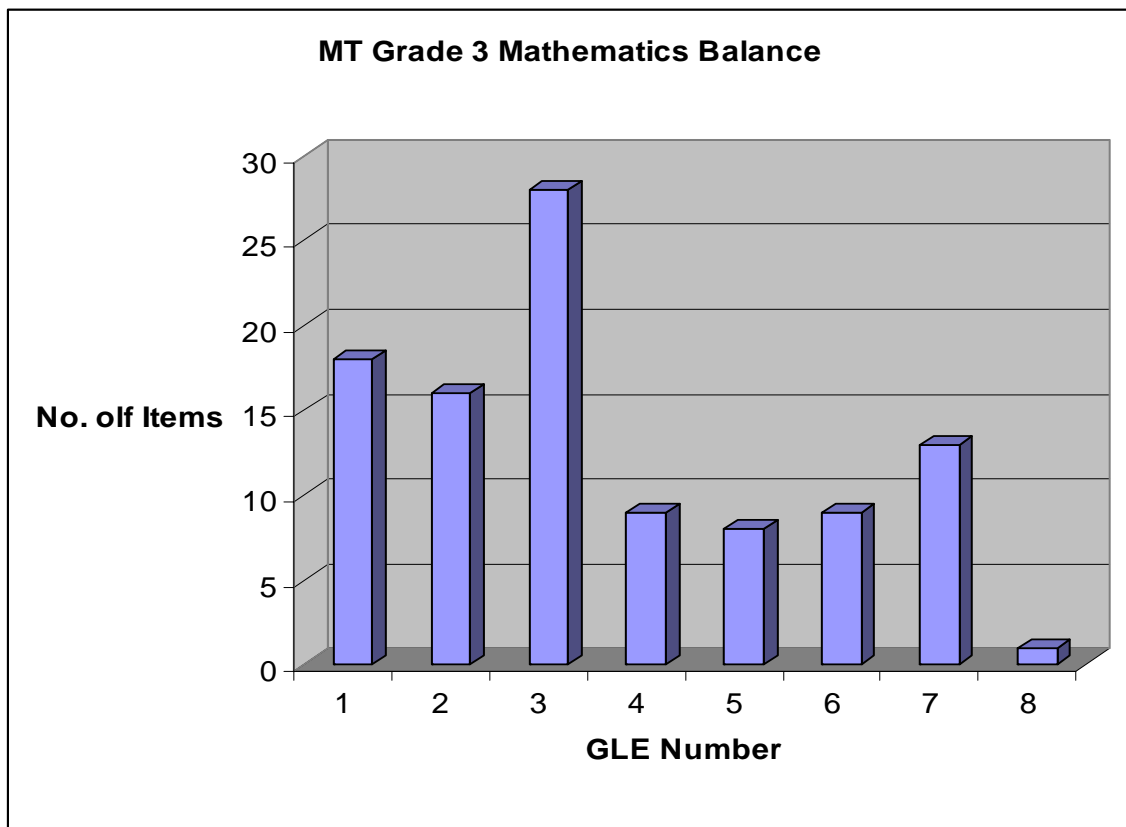


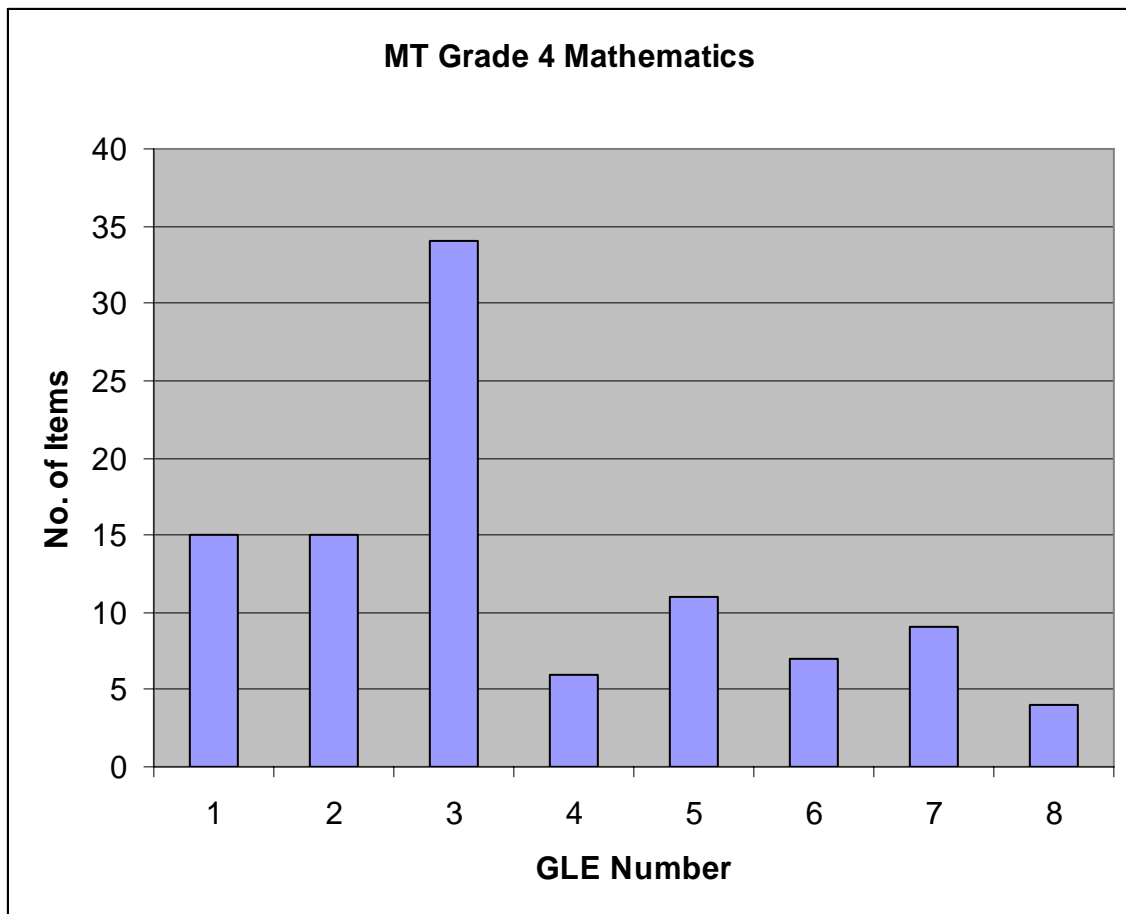


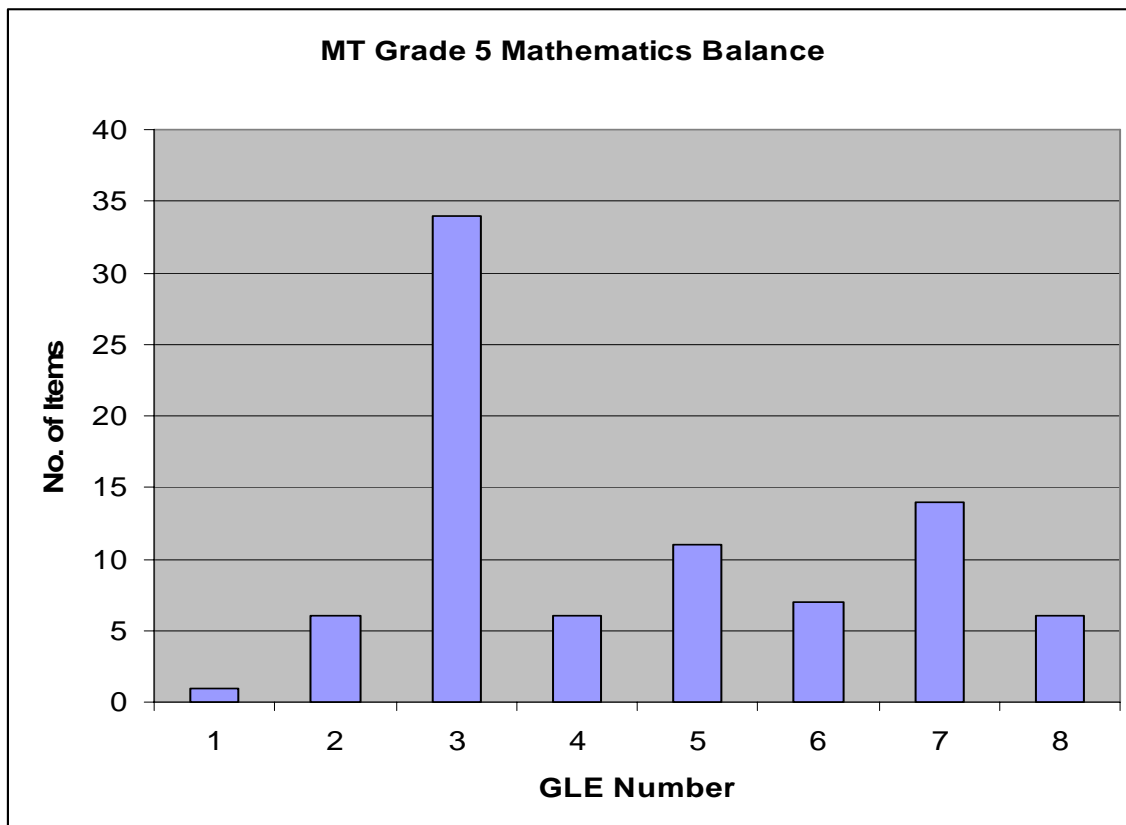


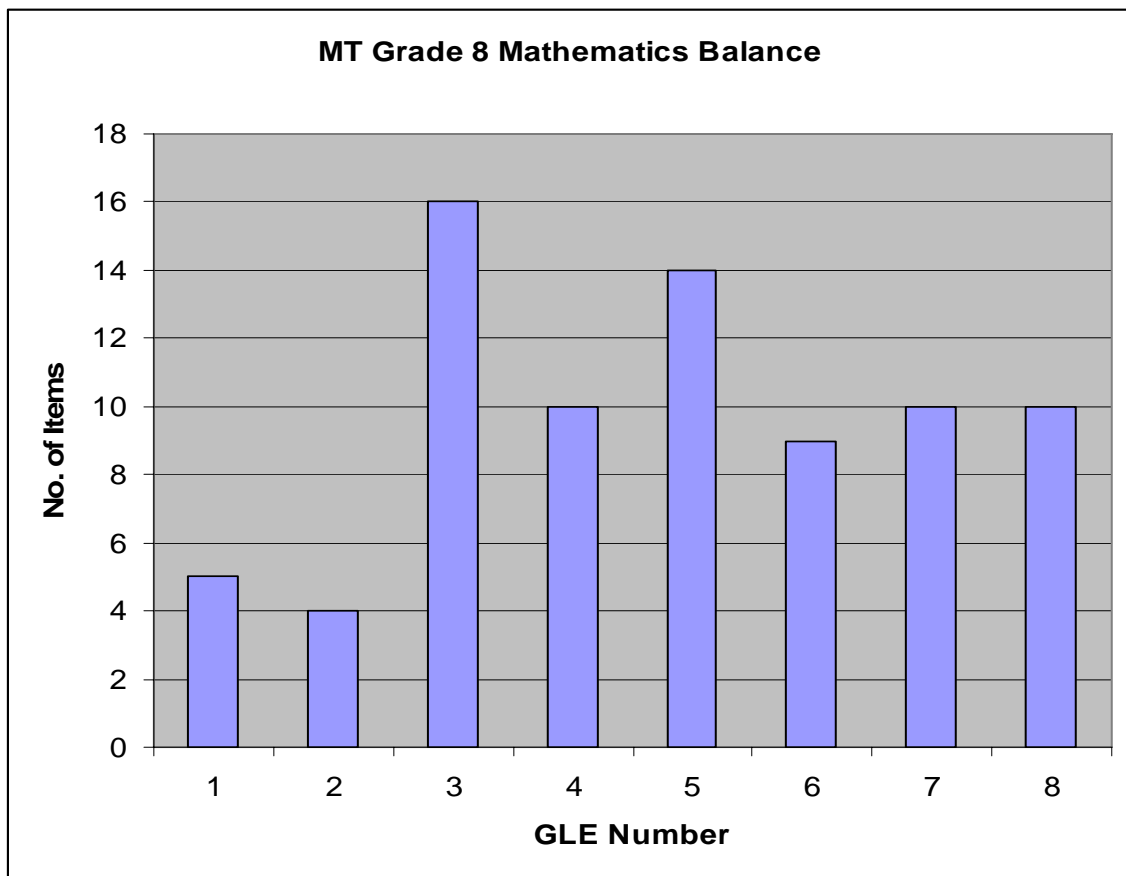












Part II: Recommendations for Changes to Increase Alignment of the 2007 Instruments

Introduction

Parts I and II of this report were shared with Montana OPI and Measured Progress in September and October of 2006.

As a result of this sharing, OPI, Measured Progress and NWREL collaborated to develop an action plan to implement the recommendations that evolved from Parts I and II. In Part III, the reader will find a matrix of the recommendations, split into short term recommendations (those that should be addressed for the spring 2007 state assessment) and long term recommendations (those to be addressed for the spring 2008 instrument).

MontCAS 2006-2007

**Short and Long Term Recommendation
and Resolution Matrix**

Grade and Content Area	Recommendation	Short Term Resolution	Long Term Resolution
Grade 3 Mathematics	NOTE: raters agreed that items 35176.000 and 34665.000 were weak items and should be replaced.		Recommend replacing these two items in 2008.
	Ensure that there are at least 6 items for Standard 7.		Approaching criteria level Currently NWREL finds only 4 of 6 needed items 34577 34578 35180 44581
	Ensure that there are at least 6 items for Standard 5	RESOLVED with 9 items 35174 44564 35182 34674 44564 34711 34682 44569 35185	
	Ensure that at least 50% of		Long Term Resolution

	the items for Standard 5 are at DK of 3		during item selection for 2008 instrument.
Grade 4 Mathematics	Ensure that at least 50% of the items for Standard 6 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.
Grade 5 Mathematics	No recommendations		
Grade 6 Mathematics	NOTE: raters agreed that due to the graphic, item 34922.000 should be replaced		Recommend replacing this item in 2008.
	Ensure that there are at least 6 items for Standard 1	RESOLVED – MP provided information on modifications that had taken place in items as a result of bias review.	
Grade 7 Mathematics	NOTE: raters agreed that items 35142.000 and 35088.001 were weak and should be replaced and that 35110.001 should be replaced due to inaccurate graphic on answer C		Recommend replacing these three items in 2008.
	Ensure that there are at least 6 items for Standard 5	RESOLVED 9 items 44791 35148 35080	

		35123 35142 345263 35099 44821 35088	
	Ensure that at least 50% of the items for Standard 5 are at DK of 2+		Long Term Resolution during item selection for 2008 instrument.
Grade 8 Mathematics	No recommendations		
Grade 10 Mathematics	Ensure that there are at least 6 items for Standard 1		Approaching criteria level MP provided information on modifications that had taken place in items as a result of bias review. Now have 5 items of the 6 needed to meet criteria. 34848 34841 35249 34888 34893
	Ensure that at least 50% of the items for Standard 7 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.
	Ensure that at least 50% of the items for Standard 6 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.

	Ensure that at least 50% of the items for Standard 5 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.
	Ensure that at least 50% of the items for Standard 4 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.

Grade and Content Area	Recommendation	Short Term Resolution	Long Term Resolution
Grade 3 Reading	Ensure that there are at least 6 items for Standard 5	RESOLVED Measured Progress replaced two passages and substituted 12 new items to the 2007 instrument.	
	Ensure that there are at least 6 items for Standard 4.		Approaching criteria level Currently NWREL finds only 4 of 6 needed items 32845 32758 33445 33639.
Grade 4 Reading	Ensure that there are at least 6 items for Standard 5	Currently NWREL finds only 1 of 6 needed 45253	Due to printing deadlines, Measured Progress will make adjustments in the 2008 instrument.
	Ensure that at least 50% of		Long Term Resolution

	the items for Standard 5 are at DK of 2+		during item selection for 2008 instrument.
Grade 5 Reading	Ensure that there are at least 6 items for Standard 5	RESOLVED 33356 45060 32826 33352 45057 45050	
	Ensure that at least 50% of the items for Standard 5 are at DK of 2+		Long Term Resolution during item selection for 2008 instrument.
	Ensure that there are at least 6 items for Standard 4	Currently NWREL finds only 3 of 6 needed items 32812 32724 33543	Due to printing deadlines, Measured Progress will make adjustments in the 2008 instrument.
	Ensure that at least 50% of the items for Standard 4 are at DK of 2+		Long Term Resolution during item selection for 2008 instrument.
	Ensure that at least 50% of the items for Standard 1 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.
Grade 6 Reading	Ensure that there are at least 6 items for Standard 5		Approaching criteria level Currently NWREL finds only 4 of 6 needed items 33563 45771

			33573 32898
	Ensure that there are at least 6 items for Standard 4	RESOLVED Measured Progress changed one reading passage and substituted 5 new items in the 2007 instrument.	
	Ensure that at least 50% of the items for Standard 5 are at DK of 2+		Long Term Resolution during item selection for 2008 instrument.
	Ensure that at least 50% of the items for Standard 4 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.
Grade 7 Reading	Ensure that there are at least 6 items for Standard 5		Approaching criteria level Currently NWREL finds only 4 of 6 needed items 33870 33536 45182 45170
	Ensure that there are at least 6 items for Standard 4	RESOLVED Measured Progress changed one reading passage and substituted 12 new items in the 2007 instrument.	
	Ensure that at least 50% of the items for Standard 5 are at DK of 2+		Long Term Resolution during item selection for 2008 instrument.
	Ensure that at least 50% of		Long Term Resolution

	the items for Standard 4 are at DK of 3+		during item selection for 2008 instrument
Grade 8 Reading	Ensure that there are at least 6 items for Standard 4	Currently NWREL finds only 3 of 6 needed items 33216 33249 33723.	Due to printing deadlines, Measured Progress will make adjustments in the 2008 instrument.
	Ensure that at least 50% of the items for Standard 5 are at DK of 2+		Long Term Resolution during item selection for 2008 instrument.
	Ensure that at least 50% of the items for Standard 4 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.
Grade 10 Reading	Ensure that at least 50% of the items for Standard 5 are at DK of 3+		Long Term Resolution during item selection for 2008 instrument.

Short Term Resolution-

1. NWREL recommends that issues of Categorical Concurrence (at least six items to assess each standard) be addressed in two phases. First, for the 2007 instrument, that additional items be added for any standard identified above that has less than 4 items per standard. Second, for the 2008 instrument, that item selection be structured to that at least 6 items are selected for each standard, as described in #2 below.

Standards with 4-6 items	Standards with less than 4 items
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Grade 3 Mathematics Standard 7 (4/6)	Grade 3 Reading Standard 5 (1/6)
Grade 10 Mathematics Standard 1 (5/6)	Grade 4 Reading Standard 5 (1/6)
Grade 4 Reading Standard 4 (4/6)	Grade 5 Reading Standard 4 (3/6)
Grade 6 Reading Standard 5 (4/6)	Grade 6 Reading Standard 4 (2/6)
Grade 7 Reading Standard 5 (4/6)	Grade 7 Reading Standard 4 (1/6)
	Grade 8 Reading Standard 4 (3/6)

As of Nov. 17, 2006 short term resolutions have been completed.

Long Term Resolution –

1. NWREL recommends that the issues of Depth of Knowledge (criteria being that at least 50% of the items assessing a standard be at or above the Depth of Knowledge level of the standard) be dealt with during the item selection for the 2008 instrument. That prior to that time, Montana teachers be trained on the Depth of Knowledge definitions as outlined by Norman Webb. During item selection, teachers choose items not only by content, but by Depth of Knowledge so that at least 50% of the chosen items be “at or above” the Depth of Knowledge level of the standard.
2. NWREL recommends that the issues of Categorical Concurrence (at least six items to assess each standard) be addressed in the long term during the items selection process for the 2008 instrument. That prior to that time, Montana teachers be made aware of the Categorical Concurrence criteria and that they choose at least six items per standard.

Reading Measured Progress Response to NWREL Review November 2006

Standard 5: Students gather, analyze, synthesize, and evaluate information from a variety of sources, and communicate their findings in ways appropriate for their purposes and audience

Grade 3

NWREL Comment	Currently NWREL finds only 1 of 6 items needed: 45504
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Item Number	Response
Item 32759	Evaluate author's purpose or perspective: This item measures a student's ability to analyze and evaluate the author's purpose in writing a poem. It is very similar to item 45504 referenced above as accepted.
Item 45505	Identify and summarize similarities and differences of elements within or between texts: This item measures a student's ability to analyze the characteristics of a text and to recognize its similarities to other texts within the same genre.
Item 45506	Identify and summarize similarities and differences of elements within or between texts: This is a 4-point constructed response item that measures a student's ability to analyze information in a text and to explain how the lives of Northwest Indian girls and boys were both similar and different hundreds of years ago.
Nov. 17, 2006	Measured Progress replaced two reading passages with new passages and 12 new items.

Grade 4

NWREL Comment	Currently NWREL finds only 1 of 6 items needed: 45253.
Item Number	Response
Item 33489	Identify and summarize similarities and differences of elements within or between texts: This item measures a student's ability to analyze the characteristics of a text and to recognize its similarities to other texts within the same genre.
Item 45285	Evaluate author's purpose or perspective: This item measures a student's ability to analyze and evaluate the author's purpose in using a question to begin an article.
Item 32952	Evaluate author's purpose or perspective: This item measures a student's ability to analyze and evaluate the author's purpose in selecting a particular title for a poem.
Nov. 17, 2006	Due to printing deadlines, Measured Progress has agreed to fully address these issues in the 2008 instrument.

Standard 4: Students select, read, and respond to print and nonprint material for a variety of purposes.

Grade 5

NWREL Comment	Currently NWREL finds only 3 of 6 items needed: 32812 (4-point CR), 32724, 33543 *
Item Number	Response
Item 33354	Identify, locate, read, and interpret information from a variety of documents and sources: This item measures a student's ability to locate specific information on the Internet.
Item 32723	Read, interpret and apply information to perform specific tasks: This item measures a student's ability to read and interpret directions to perform a task.
Item 33520	Read, interpret and apply information to perform specific tasks: This item measures a student's ability to read and interpret a diagram included with directions to perform a task.
Nov. 17, 2008	Due to printing deadlines, Measured Progress has agreed to fully address these issues in the 2008 instrument.

*We cannot locate this number: 33543.

Grade 6

NWREL Comment	Currently NWREL finds only 2 of 6 items needed: 32880, 32897.
Item Number	Response
Item 32885	Identify, locate, read, and interpret information from a variety of documents and sources: This item measures a student's ability to locate specific information through an Internet search. It is similar to items 32880 and 32897 referenced as accepted above.
Item 32937	Read, interpret and apply information to perform specific tasks: This item measures a student's ability to read and interpret directions to perform a task.
Item 33811	Read, interpret and apply information to perform specific tasks: This item measures a student's ability to read and interpret directions to perform a task.
Nov. 17, 2006	Measured Progress replaced one reading passage with a new passage and 5 new items.

Grade 7

NWREL Comment	Currently NWREL finds only 1 of 6 items needed: 33785.
Item Number	Response
Item 32708	Identify, locate, read, and interpret information from a variety of documents and sources: This item measures a student's ability to identify which reference source within a book (e.g. table of contents) is most appropriate for locating specific information.
Item 33758	Identify, locate, read, and interpret information from a variety of documents and sources: This item measures a student's ability to identify which reference source within a book (e.g. table of contents) is most appropriate for locating specific information.

Item 32706	Read, interpret and apply information to perform specific tasks: This item measures a student's ability to read and interpret directions to perform a task.
Item 32707	Read, interpret and apply information to perform specific tasks: This item measures a student's ability to use a photograph to interpret the directions to perform a task.
Nov. 17, 2006	Measured Progress replaced one passage with a new passage and 12 new items.

Grade 8

NWREL Comment	Currently NWREL finds only 3 of 6 items needed: 33216, 33249, 33723
Item Number	Response
Item 33245	Read, interpret and apply information to perform specific tasks: This item measures a student's ability to read and interpret directions to perform a task.
Item 33199	Identify recurring themes, perspectives, cultures, and issues by reading: This item measures a student's ability to identify a universal theme expressed through a tale written to share cultural wisdom.

Mathematics Measured Progress Response to NREL Review October 2006

Standard 1: Students engage in the mathematical processes of problem-solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.

Grade 6

NREL Comment	No items are aligned to standard 1.
Item Number	Response
Item 19 (34908)	Problem Solving and Reasoning: This item is aligned to standard 1. In solving this non-routine item students must first interpret the given information and determine that the solution will be the least common multiple of two numbers, next they must choose a strategy to find the least common multiple.
Item 25 (34695)	Communication and Problem Solving: This item is aligned to standard 1. It is a 4 point constructed response item that requires students to communicate the strategy they chose to

	solve a problem in a real-life context.
Item 29 (44699)	Problem Solving and Reasoning: This item is aligned to standard 1. It is a multiple-step word problem that requires strategic thinking to solve a real-life problem.
Item 35 (44701)	Problem Solving and Reasoning: This item is aligned to standard 1. It is a multiple-step word problem that requires students to solve a problem in a real-life context.
Item 36 (44702)	Problem Solving and Reasoning: This item is aligned to standard 1. Students must interpret the given information and plan a strategy to solve this real-life problem.

Grade 10

NREL Comment	We didn't find many items aligned with standard 1, and did not agree with the ones that MP had felt were aligned with standard 1
Item Number	Response
Item 7 (34479)	Reasoning and Communication: This item measures a student's ability to reason mathematically and communicate support for claims through the use of counterexamples.
Item 3 (34486)	Reasoning and Communication: This item measures a student's ability to reason abstractly to make a conclusion given a compound geometric statement.
Item 23 (34893)	Reasoning and Applications: This item measures a student's ability to apply mathematical reasoning to a problem in geometry.
Item 6 (34841)	Communication and Applications: This item measures a student's ability to apply algebra to communicate a mathematical relationship.
Item 56 (34888)	Estimation: This item measures a student's ability to use estimation to solve a problem without a calculator.
Item 19 (35249)	Reasoning: This item measures a student's ability to reason abstractly by visualizing of a three dimensional object to solve a problem.
Item 69 (44528)	Reasoning: This item measures a student's ability to reason abstractly by visualizing of a three dimensional object to solve a problem.

Part III: Recommendations for Changes in the Item Selection Process to Increase Alignment of the 2008 Instruments

As in the past, Montana teachers will work with Measured Progress to construct the 2008 instruments by selecting individual items from the Measured Progress item pool. Recommendation is that that process be modified to include several additional steps.

1. Someone from NWREL or Montana OPI work with teachers prior to item selection to provide:
 - a. Overview and train teachers on the components, definitions, processes, and criteria for each of the four elements of the alignment process developed by Norman Webb. (Depth of Knowledge, Categorical Concurrence, Balance of Representation, and Range of Knowledge)
 - b. Train teachers in the four Depth of Knowledge definitions/rubrics and practice leveling items using those rubrics.
 - c. Review the Montana content standards and grade level expectations and their depth of knowledge ratings.
2. During item selection, incorporate a matrix for teachers to use in item selection that will assist in tracking the four Webb criteria throughout the item selection process. This will help teachers and Measured Progress track the selection process against the four Webb criteria so that alignment is assured on the four criteria at the end of item selection. A sample matrix, which could be enlarged to a wall size chart for use during item selection is attached below.
3. Charts developed during step 2 above will be used during bias review, when some items are typically replaced. This will ensure that when items are replaced, they are replaced with items that match the original for Depth of Knowledge and Categorical Concurrence, thus also maintaining Balance of Representation and Range of Knowledge requirements.

Sample Process Tracking Matrix For Use During Item Selection and Bias Review

Standard or Grade Level Expectation	Depth of Knowledge Rating of Standard	Item Numbers	Depth of Knowledge	Range of Knowledge	Categorical Concurrence	Balance of Representation
<i>Grade level expectations are recorded in this cell, one GLE per cell. Multiple GLEs are aggregated for the Standard in the row below.</i>	<i>Depth of Knowledge rating for each GLE is recorded here.</i>	<i>As items are selected, their reference numbers are added in this cell</i>	<i>1. 2. 3. 4. The Depth of Knowledge for each item is entered here.</i>	<i>NWREL proposes that GLEs be considered as the objectives under each standard for purposes of determining Range of Knowledge.</i>		
<i>Individual Montana Standards are recorded in this column, 1 standard per line</i>	<i>Depth of Knowledge rating for the standard as a whole is recorded here.</i>		<i>1. 2. 3. 4. These numbers represent Webb's four cognitive levels, a</i>	<i>Data on individual items related to each GLE is aggregated in this cell to determine compliance with criteria – at least 50% of the</i>	<i>Number of items per standard, as a whole, is entered here to determine whether criteria for Categorical Concurrence has been met – a minimum of six items per standard.</i>	<i>Total number of items selected for each standard is kept here to facilitate in Balance of Representation calculations. Goal is to have approximately</i>

			<p><i>running tally of DoK levels is kept in this cell for all of the items in the GLEs above. Again, items are selected so that at least 50% are at or above the DoK level of the Standard as a whole – thus meeting the DoK criteria by Webb.</i></p>	<p><i>objectives/GLEs are assessed by at least one item.</i></p>		<p><i>equal number of items for each standard.</i></p>
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Appendix A:

Webb's Depth of Knowledge Criteria For Reading and Mathematics

General Descriptions

**(Used in this study to For Mathematics
Standards and Grade Level Expectations)**

Level 1: Recall

Recall of fact, information, definition, term, or procedure.

Key words may include: identify, recall, recognize, use and measure. Verbs such as describe and explain could be classified at different levels depending on what is to be described and explained.

Level 2: Skill/Concept

Use of information, conceptual knowledge, procedures, two or more steps, etc. Requires students to make decisions on how to proceed. Key words may include: classify, organize, estimate, make observations, collect and display data and compare data. Implies more than one step.

Level 3: Strategic Thinking

Requires reasoning, developing a plan or sequence of steps; has some complexity; more than one possible answer; generally takes less than 10 minutes to do. In most cases asking a student to explain their thinking is a Level 3. May include citing evidence, drawing conclusions from observations, and developing a logical argument and using concepts to solve a problem.

Level 4: Extended Thinking

Requires an investigation; time to think and process multiple conditions of the problem or task; and more than 10 minutes to do non-routine manipulations. Cognitive demands are high and the work complex. May include designing and conducting experiments, making connections between a finding and related concepts, combining and synthesizing ideas into new concepts or critiquing experimental designs.

Reading Depth of Knowledge Descriptions

**(Used in this study to For Reading
Standards and Grade Level Expectations)**

Reading Level 1

Level 1 requires students to receive or recite facts or to use simple skills or abilities. Oral reading that does not include analysis of the text as well as basic comprehension of a text is included. Items require only a shallow understanding of text presented and often consist of verbatim recall from text, or simple understanding of a single word or phrase. Some examples that represent, but do not constitute all of, Level 1 performance are:

- ❑ Support ideas by reference to details in the text.
- ❑ Use a dictionary to find the meaning of words.
- ❑ Identify figurative language in a reading passage.

Reading Level 2

Level 2 includes the engagement of some mental processing beyond recalling or reproducing a response; it requires both comprehension and subsequent processing of text or portions of text. Inter-sentence analysis of inference is required. Some important concepts are covered but not in a complex way. Standards and items at this level may include words such as summarize, interpret, infer, classify, organize, collect, display, compare, and determine whether fact or opinion. Literal main ideas are stressed. A Level 2 assessment item may require students to apply skills and concepts that are covered in Level 1. Some examples that represent, but do not constitute all of, Level 2 performance are:

- ❑ Use context cues to identify the meaning of unfamiliar words.
- ❑ Predict a logical outcome based on information in a reading selection.
- ❑ Identify and summarize the major events in a narrative.

Reading Level 3

Deep knowledge becomes a greater focus at Level 3. Students are encouraged to go beyond the text; however, they are still required to show understanding of the ideas in the text. Students may be encouraged to explain, generalize, or connect ideas. Standards and items at Level 3 involve reasoning and planning. Students must be able to support their thinking. Items may involve abstract theme identification, inference across an entire passage, or students' application of prior knowledge. Items may also involve more superficial connections between texts. Some examples that represent, but do not constitute all of, Level 3 performance are:

- ❑ Determine the author's purpose and describe how it affects the interpretation of a reading selection.
- ❑ Summarize information from multiple sources to address a specific topic.
- ❑ Analyze and describe the characteristics of various types of literature.

Reading Level 4

Higher-order thinking is central and knowledge is deep at Level 4. The standard or assessment item at this level will probably be an extended activity, with extended time provided for completing it. The extended time period is not a distinguishing factor if the required work is only repetitive and does not require the application of significant conceptual understanding and higher-order thinking. Students take information from at least one passage of a text and are asked to apply this information to a new task. They may also be asked to develop hypotheses and perform complex analyses of the connections among texts. Some examples that represent, but do not constitute all of, Level 4 performance are:

- ❑ Analyze and synthesize information from multiple sources.
- ❑ Examine and explain alternative perspectives across a variety of sources.
- ❑ Describe and illustrate how common themes are found across texts from different cultures.

Appendix B: Montana State Reading and Mathematics Grade Level Expectations



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Linda McCulloch
Superintendent

Grade Level Expectations

Grades 3-8 and 10 Mathematics

Grade 3	<ol style="list-style-type: none"> 1. Selects and uses appropriate problem-solving strategies (e.g., estimate, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator) in many contexts. 2. Communicates solutions to problems in a variety of ways (e.g. concrete, pictorial, graphical). 3. Uses addition, subtraction, and multiplication of whole numbers to estimate, compute, and determine whether results are accurate. 4. Selects and solves number sentences (with boxes or letters) that represent simple real-world addition or subtraction situations. 5. Identifies two- and three-dimensional shapes. 6. Identifies measurable attributes of objects (e.g., length, time), and selects and uses appropriate tools to measure them. 7. Draws appropriate conclusions (makes interpretations) using data. 8. Identifies a variety of patterns and states the next term in the pattern.
Grade 4	<ol style="list-style-type: none"> 1. Selects and uses appropriate problem-solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer) in many contexts. 2. Communicates solutions to problems in a variety of ways (e.g., written, verbal, concrete, pictorial, graphical, algebraic). 3. Uses addition, subtraction, multiplication, and division of whole numbers to estimate, compute, and determine whether results are accurate. 4. Applies basic algebra concepts using concrete and symbolic representations (e.g., number sentences with boxes or letters) and communicates relationships in a variety of ways. 5. Identifies two- and three-dimensional shapes and accurately uses relationships among shapes (e.g., combinations, subdivisions,

	<p>symmetry, congruence, position) to solve problems in the physical world.</p> <ol style="list-style-type: none"> 6. Identifies measurable attributes of objects (e.g., length, capacity, weight, mass, area, volume, time, temperature), and selects and uses appropriate tools to measure them. 7. Predicts and makes appropriate decisions using data (e.g., collects, organizes, constructs displays [including graphs], and interprets) to solve problems. 8. Uses a variety of patterns to describe mathematical and real-world relationships.
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Grade 5	<ol style="list-style-type: none"> 1. Selects and uses appropriate problem-solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer) in many contexts. 2. Communicates organized solutions to problems in a variety of ways (e.g. written, verbal, concrete, pictorial, graphical, algebraic). 3. Uses addition, subtraction, multiplication, and division of whole numbers and decimals to estimate, compute, and determine whether results are accurate and reasonable. Uses part/whole relationships in everyday situations. 4. Applies basic algebraic concepts and communicates different representations of the same relationship (e.g., number sentence, picture). 5. Identifies shapes and accurately uses relationships among shapes (e.g., combinations, subdivisions, symmetry, congruence, position) to solve problems in the physical world. 6. Selects appropriate units for measurements, including square and cubic units. 7. Predicts and makes appropriate decisions using data (e.g., collects, organizes, graphs, and interprets data). 8. Uses and analyzes a variety of patterns to describe mathematical and real-world relationships in various ways.
Grade 6	<ol style="list-style-type: none"> 1. Selects and uses appropriate problem-solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer) in many contexts. 2. Communicates organized solutions to problems in a variety of ways (e.g. written, verbal, concrete, pictorial, graphical, algebraic) and provides appropriate support (e.g., reasons, rationales).

	<ol style="list-style-type: none"> 3. Uses addition, subtraction, multiplication, and division of whole numbers, decimals, and fractions to estimate and compute, and to determine whether results are accurate and reasonable. 4. Uses basic algebraic concepts and represents relationships in appropriate ways (e.g., number sentence, picture, graph) to solve selected problems. 5. Applies geometric relationships (e.g., symmetry, congruence, position) to solve selected problems. 6. Performs conversions among basic units within a system of measurement and determines the areas of geometric figures. 7. Makes reasonable predictions based on data, basic probability, and statistics (e.g., tables, charts, graphs). 8. Uses and analyzes a variety of patterns to describe mathematical and real-world relationships in various ways.
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Grade 7	<ol style="list-style-type: none"> 1. Selects and uses appropriate problem-solving strategies (e.g., estimate, make a table, look for a pattern, simplify the problem) and technologies (e.g., paper and pencil, calculator, computer, data collection devices) in many contexts. 2. Communicates organized solutions to problems in a variety of ways (e.g. written, verbal, concrete, pictorial, graphical, algebraic) and provides appropriate support (reasons, rationales). 3. Uses rational numbers, proportions, and percents to solve problems. 4. Uses basic algebraic concepts and represents relationships in appropriate ways (e.g., number sentence, picture, graph) to solve real-world problems. 5. Applies geometric relationships such as coordinates and transformations to solve selected problems. 6. Uses formulas to determine areas and volumes. 7. Makes reasonable predictions based on data, basic probability, and statistics (e.g., tables, charts, graphs). 8. Analyzes and describes patterns and functions using various representations (e.g., tables, graphs, verbal rules).
Grade 8	<ol style="list-style-type: none"> 1. Selects and uses appropriate processes (e.g., estimation, multiple steps) and technologies (e.g., paper and pencil, calculator, computer, data collection devices) in many contexts. 2. Formulates and communicates logical arguments using appropriate mathematical ideas (e.g. mathematical terms, notations). 3. Uses rational numbers and proportionality (e.g., ratio, proportion, percent) to represent and solve problems, and determine whether results are accurate. 4. Uses algebra concepts (e.g., variable) and methods (e.g., equation, graph) to represent and solve real-world problems.

	<ol style="list-style-type: none"> 5. Uses geometric relationships (e.g., the Pythagorean Theorem) and properties (e.g., plane, solid) to solve real-world problems. 6. Uses complex measurement (e.g., units and tools at appropriate level of accuracy, rates and other derived measures) to describe the physical world and solve real-world problems. 7. Makes reasonable predictions and decisions using data, basic probability, and statistics (e.g., tables, charts, graphs, measures of central tendency), collect, organize, and describe data. 8. Analyzes and describes functional relationships and their representations (e.g., tables, graphs, verbal rules, algebraic equations).
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Grade 10	<ol style="list-style-type: none"> 1. Selects and uses appropriate processes (e.g., estimation, multiple steps) and technologies (e.g., paper and pencil, calculator, computer, data collection devices) to solve a variety of problems within and outside mathematics and communicates the results. 2. Formulates and communicates logical arguments using appropriate mathematical ideas (e.g. mathematical terms, notations, generalizations) and reasoning. 3. Uses real and complex numbers systems to solve mathematical problems. 4. Applies functions, graphs, and algebraic concepts to solve real-world problems . 5. Applies geometric relationships (e.g., the Pythagorean Theorem) and properties (e.g., congruence, similarity) to model a variety of problems and situations. 6. Applies complex measurement (e.g., derived measures, indirect measures) to describe and compare and contrast objects in the physical world and solve real-world problems. 7. Makes reasonable predictions and decisions using data, basic probability, and statistics (e.g., tables, graphs, measures of central tendency, variability, correlation, sampling). 8. Analyzes functions using graphical, numerical, and algebraic methods.
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Linda McCulloch
Superintendent

Grade-level Expectations

Grades 3-8 and 10 Reading

Grade 3	<ol style="list-style-type: none"> 1. Makes predictions using new material and previous information/experiences. 2. Identifies basic main ideas and supporting details. 3. Decodes unknown words in grade-level text using a variety of strategies. 4. Identifies literary elements and devices in works of literature at grade-level 5. Uses substantial reading vocabulary appropriate to grade-level. 6. Applies, articulates, and self-monitors decoding and comprehension strategies—not measurable on statewide assessment. 7. Sets appropriate reading goals – not measurable on statewide assessment. 8. Identifies a variety of purposes for reading and selects appropriate print and non-print materials . 9. Recognizes an author's point of view. 10. Recognizes cultural differences including American Indians in various materials. 11. Compares and integrates information from two sources.
Grade 4	<ol style="list-style-type: none"> 1. Makes predictions and connections between new material and previous information/experiences. 2. Demonstrates a basic understanding of main ideas and supporting details. 3. Decodes unknown words in grade-level text using a variety of strategies . 4. Identifies literary elements and devices in works of literature at grade-level. 5. Uses a substantial reading vocabulary appropriate to grade-level

	<ol style="list-style-type: none"> 6. Applies, articulates, and self-monitors decoding and comprehension strategies—not measurable on statewide assessment. 7. Sets appropriate reading goals – not measurable on statewide assessment. 8. Selects and uses appropriate print and non-print materials to meet a variety of purposes at grade-level (e.g., signs, labels, instructions, recipes, directions, schedules, maps, tables, charts). 9. Recognizes an author's point of view and can distinguish fact from opinion. 10. Recognizes cultural differences including American Indians in various materials. 11. Compares and integrates information from more than two sources.
Grade 5	<ol style="list-style-type: none"> 1. Makes predictions and describes connections between new materials and previous information/experience. 2. Summarizes the main idea and details from materials read. 3. Decodes unknown words in grade-level text and applies a variety of strategies when reading literature and content area material. 4. Identifies and compares literary elements and devices in works of literature at grade-level. 5. Uses a substantial reading vocabulary appropriate to grade-level. 6. Applies, articulates, and self-monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment. 7. Sets and meets appropriate reading goals – not measurable on statewide assessment. 8. Selects and uses appropriate reading material to meet a variety of purposes at grade-level. 9. Recognizes an author's point of view and purpose and can distinguish fact from opinion.

	<ul style="list-style-type: none"> 10. Identifies cultural perspectives of diverse populations including American Indians in various materials. 11. Compares and integrates information from a variety of sources.
Grade 6	<ul style="list-style-type: none"> 1. Makes predictions and describes connections between new materials and previous information/experience. 2. Identifies inferred and stated main ideas and selects important facts and details from materials read. 3. Decodes unknown words in grade-level text and applies a variety of strategies when reading literature and content area material. 4. Identifies and compares literary elements and devices in works of literature at grade-level. 5. Uses a substantial reading vocabulary appropriate to grade-level. 6. Applies, articulates, and self-monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment. 7. Sets and meets appropriate reading goals – not measurable on statewide assessment. 8. Selects and uses appropriate reading materials to meet a variety of purposes at grade-level. 9. Recognizes an author's point of view and purpose and identifies some literary devices that authors use in composing text. 10. Identifies cultural perspectives of diverse populations including American Indians in various materials. 11. Compares and integrates information from a variety of print and non-print sources.
Grade 7	<ul style="list-style-type: none"> 1. Makes predictions and clearly describes, with details, connections between new materials and previous information/experience. 2. Interprets stated and inferred main ideas, and identifies important

	<p>supporting details when reading material appropriate to the grade-level.</p> <ol style="list-style-type: none"> 3. Decodes unknown words in grade-level text and applies a variety of strategies when reading literature and content area material. 4. Interprets and compares literary elements and devices in works of literature at grade-level. 5. Uses a substantial reading vocabulary appropriate to grade-level. 6. Applies, articulates, and self-monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment. 7. Sets and meets appropriate reading goals – not measurable on statewide assessment. 8. Selects and uses appropriate material to meet a variety of reading purposes at grade-level. 9. Recognizes an author's point of view and purpose and identifies some literary devices that author used to influence readers. 10. Identifies cultural perspectives of diverse populations including American Indians in various materials. 11. Compares, contrasts and integrates information from a variety of print and non-print sources.
Grade 8	<ol style="list-style-type: none"> 1. Makes predictions and clearly describes, with details, meaningful connections between new materials and previous information/experience. 2. Interprets stated and inferred main ideas, and identifies important supporting facts and details when reading material appropriate to grade-level. 3. Decodes unknown words in grade-level text and applies a variety of strategies when reading literature and content area material. 4. Interprets and analyzes literary elements and devices in works of literature at grade-level. 5. Uses a substantial reading vocabulary appropriate to grade-level.

	<ol style="list-style-type: none"> 6. Applies, articulates, and self-monitors decoding and comprehension strategies and evaluates reading progress—not measurable on statewide assessment. 7. Sets and meets appropriate reading goals – not measurable on statewide assessment. 8. Selects and uses appropriate print and non-print material to meet a variety of reading purposes (e.g., to organize and understand information, to investigate a topic, to apply information to perform specific tasks). 9. Recognizes an author's point of view and purpose and identifies use of language and literary devices used to influence readers. 10. Identifies and interprets social responsibilities and cultural perspectives of diverse populations including American Indians in various materials. 11. Compares, contrasts and integrates information from a variety of print and non-print sources to defend a point of view.
Grade 10	<ol style="list-style-type: none"> 1. Makes and revises predictions and identifies connections within material and between material and previous information/experiences. 2. Paraphrases stated and inferred main ideas, identifies supporting evidence and responds using a variety of modes. 3. Applies decoding strategies to understand grade-level text. 4. Applies a few strategies to interpret, analyze and evaluate the language, literary elements, literary devices, and overall intent of print and non-print material. 5. Uses a substantial reading vocabulary appropriate to grade-level. 6. Articulates and evaluates the strategies used to monitor reading—not measurable on statewide assessment. 7. Sets, evaluates and often meets appropriate reading goals – not measurable on statewide assessment. 8. Selects, evaluates, compares, analyzes, and uses appropriate print

	<p>and non-print material to meet a variety of reading purposes (e.g., reference material, pamphlets, electronic information, schedules, maps, technical manuals).</p> <p>9. Recognizes author's point of view and purpose. Analyzes and evaluates evidence, logic, language, bias and other strategies used to influence readers.</p> <p>10. Analyzes and evaluates and creates materials that demonstrate social responsibilities and cultural perspectives of diverse populations including American Indians.</p> <p>11. Logically gathers, analyzes, synthesizes and responds to information from a variety of sources.</p>
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Appendix C: Professional Resumes of NWREL Staff

JAMES C. LEFFLER

Primary Areas of Expertise

Student Classroom Assessment
Program Evaluation
State Standards and Large Scale Assessment
Alignment of Curriculum, Assessment and Standards
Literacy and Literacy Assessment
Performance Assessment
Assessment Literacy
Project Design
Teacher Preparation
Action Research

Education and Professional Credentials

1990 EdD Educational Leadership – Administration Portland State University Portland, OR

1974 MEd Curriculum Development Eastern Washington University Cheney, WA

1971 BAEd Major: Psych Human Development Eastern Washington University Cheney, WA

Washington State Pre-school through Grade 12 Continuing Teaching Certification

Washington State Pre-school through Grade 12 Principal's Certification

Employment

Present	Northwest Regional Educational Laboratory Portland, OR
	2003 to Present Program Director – OERI Task 1 and Services to the Field Directed activities with 15 partner schools in Washington, Oregon, Idaho, Montana and Alaska, including five state liaisons and five research and development teams.
	Consulted with state education agencies to provide technical assistance with state assessment and accountability systems, NCLB alignment studies between state standards and state assessments, development of state American Indian standards, evaluation of state school improvement programs, and serve in assessment advisory committees.
	2001 – 2003 Unit Manager – OERI Task 1 Coordinated state liaisons, provided long term planning with partner site schools in five states, coordinated Task I services to the field and R&D teams.
1981-2001	Evergreen School District Vancouver, WA Manager of Assessment, Fiscal Research, Elementary Principal, Grants Manager, Elementary Title I Reading Specialist, and Jr. High English teacher.
1993 –2002	City University Bellevue, WA Adjunct Faculty MEd Program, Adjunct Faculty MiT Program Instructor: History of Education, Philosophy of Education, Research, Action Research, Curriculum, Accessing Information. Developed syllabus for MEd Emphasis in Reading
1998-2001	Educational Service District #112 Vancouver, WA Instructor – Assessment Training Cadre, providing training of regional teachers on using assessment to guide instruction, aligning curriculum to state standards, and instructional methods related to state assessment methods.
1991-1992	Sierra University California

On-site mentor and instructor for PhD distance learning Student

- 1987-1990 Portland State University Portland, OR
Supervisor of Student Teachers for PSU, U of Portland, Lewis and Clark College, Concordia College
- 1978-1981 Educational Service District #112 Vancouver, WA
Grants Manager and Curriculum Generalist, providing regional service and technical assistance for 31 local school districts in curriculum development and in ESEA Title I and II program application, administration, and pre-monitoring technical assistance.
- 1977-1978 Educational Service District #121 Seattle, WA
Author and Teacher trainer for federal Career Education grant
- 1975-1977 Camas School District Camas, WA
Project Director and Teacher Trainer with Title III Career Education Grant
- 1974-1975 Clarkston School District Clarkston, WA
Teacher Trainer with Title III Career Education Grant
- 1971-1974 Royal School District Royal City, WA
Classroom teacher – First Grade and Second Grade

Selected Recent Workshops and Presentations

“Assessing Student Reading Levels and Fluency” Presented to staff and paraprofessionals at Plummer-Worley School District, Plummer, Idaho, January 2005.

“ISAT, NCLB, AYP – Dealing with the Media” Presented at the Idaho School Boards Association annual meeting, Boise, Idaho, November 2004.

“Profiles of Change” Presented to the 59th Annual Conferences of the Association for Supervision and Curriculum Development, New Orleans, Louisiana, March 22, 2004

“NWREL Work With Struggling Alaska Schools” Presented to the Alaska School and District Improvement meeting sponsored by the University of Alaska, Anchorage, Alaska, April 25, 2003.

“Igniting School Improvement” Presented to the 58th Annual Conference of the Association for Supervision and Curriculum Development, San Francisco, California, March 9, 2003.

Facilitating the Idaho State ISAT Cut Score Setting Meeting Boise, Idaho, January 28, 2003

“Aligning Montana Standards With the Mont-CAS CRT” Presented to Montana Education Association and Montana Federation of Teachers annual conference, Missoula, Montana, October 17, 2002.

“Assessment Literacy – The New Idaho Standards Achievement Test: an Introduction for Idaho School Administrators: Presented to Idaho School Administrators Association Annual Conference, Boise, Idaho, June 2002.

”Creating a Community of Learning and Excellence” Presented to Washington Association of Educational Grants Managers annual conference, Yakima, Washington, March 26, 2002.

“Helping Schools Become A High Performing Learning Community” Presented to The Ninth Annual Office of Superintendent of Public Instruction’s (Washington) Annual Conference, Spokane, Washington, January 22, 2002.

Selected Publications

“School Improvement Assistance Program in Washington: A Study of Twenty Nine Cohort III Schools.” A report prepared for the Washington State Office of the Superintendent of Public Instruction, October 2006.

“Alignment of Montana State Standards with State Assessments” A study report prepared for the Montana Superintendent of Public Instruction, Northwest Regional Educational Laboratory, October 2006.

“School Improvement Assistance Program in Washington: A Study of Thirteen Schools” A report prepared for the Washington State Office of the Superintendent of Public Instruction, Sept. 2005.

“A Field Guide For Change Facilitators Working With Low Performing Schools” co-editor. Northwest Regional Educational Laboratory, 2005.

“Alignment of Montana State Standards with State Assessments” A study report prepared for the Montana Superintendent of Public Instruction, Northwest Regional Educational Laboratory, May 2005.

“Alignment of Idaho State Standards with the Idaho Direct Math Assessment in Grades 4, 6, and 8” A study report prepared for the Idaho State Department of Education, Northwest Regional Educational Laboratory, June 2004.

“Item Analysis Study for Idaho Department of Education: End of Course Exams in Physical Science, Earth Science, Biology, History I, History II and American Government” An analysis prepared for the Idaho State Department of Education, Northwest Regional Educational Laboratory, November 2003.

“Alignment of Idaho State Standards with the Idaho Standards Achievement Test” A study report prepared for the Idaho State Department of Education and the Idaho State Board of Education, Northwest Regional Educational Laboratory, June 2003.

“Alignment of Alaska State Standards With State Benchmarks Assessment and the Terra Nova” A study report prepared for the Alaska Department of Education and Early Development, Northwest Regional Educational Laboratory, August 2002.

“Alignment of Montana State Standards with State Assessments” A study report prepared for the Montana Superintendent of Public Instruction, Northwest Regional Educational Laboratory, August 2002.

KATHLEEN (KIT) M. PEIXOTTO

Primary Areas of Expertise

Program management
Standards-based teaching in science and mathematics education
Professional development
Program evaluation

Education

Basic Administrators License, Leadership 2000 Program, Portland State University, 1996
Doctoral Candidate (Ed.D.) in Supervision, University of Louisville, 1992
Master of Arts in Teaching, Natural Sciences, University of Louisville, 1990
Bachelor of Arts, Spanish, University of Puget Sound, 1969

Employment

2003-present Senior Program Director, Center of Excellence for Classroom Teaching and Learning
Northwest Regional Educational Laboratory

Director, Region X Comprehensive Center (2004 – 2005)

Director, Mathematics and Science Education Center (1997 – present)

- Director, Northwest Regional Eisenhower Consortium (2000 – 2005)
- Provide leadership and management for NWREL's science and mathematics education work including: technical assistance, product development, and resource dissemination

1996 Education Specialist, Office of Curriculum, Instruction and Field Services.

(July – Nov) Oreogon Department of Education.

- Coordinated final development effort of the state's Common Curriculum Goals and Content Standards prior to their adoption by the State Board of Education. Served as a regional team leader for school improvement visits.

1992-95 Professional Development Associate, Northwest Consortium for Mathematics and Science Teaching, Northwest Regional Educational Laboratory

- Provided professional development activities, research and evaluation to support local, state and national reform efforts in mathematics and science education.

1987-89 Middle School Science Teacher
Fairfax County Public Schools, Virginia

1984-87 Middle School Science Teacher
Albuquerque School District, New Mexico

1970-71 Junior High Spanish Teacher
South Kitsap Schools, Washington

Projects/Activities

Chair, Evaluation Committee of the Eisenhower National Network, 2002 – 2005.

Evaluator, Project TEACH, an NSF funded project at Green River Community College, Auburn, Washingtgon, 1999-present.

NWREL Liaison, National Awards Program for Effective Teacher Preparation, U. S. Department of Education, 1999-2001.

NWREL Liaison, National Awards Program for Model Professional Development, U. S. Department of Education, 1998-2001.

Evaluator, Oregon Eisenhower Professional Development Program, Oregon Department of Education, 1997-98

Evaluator, Advocates for Women in Science, Engineering and Mathematics (AWSEM), an NSF funded project at Saturday Academy, Oregon Graduate Institute of Technology, 1994-96.

Workshops and Presentations

“Lesson Study: Teachers Learning Together”, NSTA Regional Conference, November 2004

“Lesson Study: Improving Teaching Through Collaborative Planning”, Idaho Title I Conference, July 2004.

“Adding It Up: What Does the Research Say about Effective Mathematics Instruction?”, Montana Title I Conference, February 2004.

"A Performance Assessment Model in Science", Washington Educational Research Association, March 2000

"Alternative Assessment Strategies for Mathematics and Science", Montana Leadership Conference 2000, January 2000

"Administrators Session", Oregon Science Summit, October 1999

"Meeting the Science Inquiry Benchmarks: What Does It Take?" Oregon Council of School Administrators Annual Conference, June 1999.

"A Research Partnership for Problem Solving in Mathematics," Washington Education Research Association, March 1999

"TIMSS-Third International Mathematics and Science Study", Idaho Council of Mathematics Teachers Fall Conference, October 1997

"Science and Mathematics for All Students: It's just good teaching,": Northwest Unity in Diversity '97, April 1997

"School-to-work Transitions: An Opportunity to Promote Gender Equity in Mathematics and Science," Northwest School-to-Work Transition and Tech Prep 2 Conference, April 1995

"Science and Mathematics for All: Developing and Implementing A Shared Vision," National Coalition for Sex Equity in Education Annual Conference, July 1994

"A Vision of Science and Mathematics for All", Keynote Address for Math/Science Strand, National Middle School Association Annual Conference, November 1993

"Factors Affecting Females' Selection of Math and Science Careers", NSTA Annual Convention, April 1993

"Enhancing Science Curriculum Through Performance Assessment", NSTA Annual Convention, March 1992

Publications

High-quality Professional Development: An Essential Component of Successful Schools, with J. Fager, Northwest Regional Educational Laboratory, 1998

The Preparation and Certification of K-12 Mathematics and Science Teachers in the Northwest, contributing author, Northwest Regional Educational Laboratory, 1996

Designing Effective Professional Development in A Toolkit for Professional Developers: Alternative Assessment, with J. Palmer, Regional Educational Laboratory Network Program, 1994

A Vision of Science and Mathematics for All, Northwest Regional Educational Laboratory, 1993

Professional Organizations

Member:

American Educational Research Association

Association for the Education of Teachers in Science

National Science Teachers Association

National Staff Development Council

Phi Delta Kappa

Maureen Sherry Carr

**Senior Program Advisor
Center for Classroom Teaching and Learning
Literacy and Language Development Unit
Curriculum Vitae**

PRIMARY AREAS OF EXPERTISE

Curriculum Development and Instruction

Literacy, K- Adult

Professional Development

(language requirement for Ph. D. was statistics)

Research and Evaluation

EDUCATION

Ph. D., Oregon State University, Educational Foundations, 1990

Dissertation: A Comparison of the Metacognitive Behaviors of Field Independent and Field Dependent Pre-Service Teachers (A quantitative study of 26 randomly selected subjects of the effect of cognitive style on the metacognitive functioning of individuals during problem solving activities)

M. Ed., Oregon State University, Reading and Elementary Education, 1984

B. A., University of Rhode Island, History, 1963

PROFESSIONAL EXPERIENCE

Senior Advisor, Center for Classroom Teaching and Learning, 2001-Present
Literacy and Language Development

Northwest Regional Educational Laboratory
Focus is research and professional development as part of the NWREL Literacy and Language Team

Assistant Professor, Teacher Education Division, 2000-2001

Western Oregon University

Supervised development and completion of masters' candidates research theses. Team leader on revision of teacher education curriculum for elementary and secondary certificate qualification. Taught research design in Master of Science/Arts for educators. Developed and taught courses in literacy for middle and high school pre-service and in-service teachers. Advisor for bachelor and master level students in reading endorsement courses.

Associate-Curriculum and Instruction, 1996-2000

Northwest Regional Educational Laboratory

Co-developer of Curriculum Inquiry Cycle: Improving Learning and Teaching; conduct professional development institutes and workshops; collaborate on departmental and inter-department projects; develop and write curriculum and professional development materials; member of Laboratory Network Program for Curriculum, Learning and Instruction.

Visiting Assistant Professor, Linfield College, 1995-1996

Advised and coached student teachers; assisted students to expand their ideas of learning and teaching-collaborative teaching, problem-solving, performance-based assessment; taught students to understand the needs of diverse populations and to implement teaching techniques that include all types of learners; advisor to Kappa Delta Pi, the education honorary for undergraduates in teacher education.

Assistant Professor, Western Oregon University, 1992-1995

Taught students planning and assessment principles and techniques; redesigned courses in curriculum, assessment and literacy; coordinated student placements in local school districts; coached student teachers working in public school classrooms; reviewed student petitions to policy and review committee; interviewed candidates for entrance into the WOU program.

Instructor-Writing and Learning Center, Oregon State University, 1991-1992

Administered reading assessments and developed individual student study plans; taught study skills, reading and writing skills necessary to assist at risk students to be successful in college classes.

Assistant Professor, Oregon State University, 1990-1991

Taught educational and adolescent psychology and literacy courses to pre-service and in-service teachers; active member of teacher education re-design committee.

Instructor, Oregon State University, 1985-1990

Coordinator of field-based course for sophomore level students; supervised five graduate teaching assistant supervisors in the field program; developed field placements in local public schools; liaison between school districts and the college program; supervised students in practica at all levels operational at OSU.

K-12 EXPERIENCE

OSU Reading Clinic, Oregon State University, 1984-1986

Assessed reading ability through standardized and informal tests and through observations of reading performance; provided individual and small group instruction to primary and middle level students referred to the clinic by teachers and/or parents; assisted adult students with memory loss due to brain trauma to regain access to reading skill; supervised six OSU students working toward certification in reading.

Teacher, Floyd County Public Schools, Floyd, VA, 1977-1978

Taught Language Arts-Social Studies core for sixth and seventh grade classes fall semester; home teacher for disabled students in all subject areas, K-12.

Teacher, Liverpool Central School District, Liverpool, NY, 1967-1973

Classroom teacher, grades: 5, 1, 3- taught all subjects in elementary curriculum; team leader, 1971-1973-developed team budget, organized team meetings and represented team at principal-staff meetings; team representative to elementary science and language arts committees; co-developed environmental science curriculum, K-12; flexible teacher, 1967-1968- taught remedial and gifted students from five elementary teams.

Teacher, Johnston Public Schools, Johnston, RI, 1965-1967

Provided instruction in all elementary curricular areas-grade 4

Teacher, St. Joseph's Elementary School, Pawtucket, RI, 1963-1964

Provided instruction in all elementary curricular areas-grade 4

WORKSHOPS AND PRESENTATIONS

"Developing Comprehension Skills" workshop for middle school teachers at Inza R. Wood Middle School, West Linn/Wilsonville School District, Wilsonville, OR, August 16, 2005.

"Integrating Math, Reading and Writing to Increase Learning for Elementary Students" workshop for elementary teachers. Cascade Elementary School, Renton, WA, May 9, 2005.

"Literacy and Learning across the Curriculum" workshop for middle school teachers on vocabulary and comprehension strategies to increase student literacy learning. Lakeside Middle School, Plummer, ID, April 18, 2005.

"Adolescent Thinking and Learning Academy Part II six follow up sessions held for middle school teachers held in Coeur d'Alene, Lewiston, Nampa, Idaho Falls, Twin Falls, and Pocatello, ID, March-April, 2005.

“Easy to Do & Research-Based, Too” vocabulary and comprehension strategies for middle and high school teachers. Education Now and in the Future Conference, Portland, OR, March 1, 2005.

“Conducting Effective Student Assessments and Using Assessment Results to Plan Instruction” workshop for K-12 educators on integrating assessment and instruction. Education Now and in the Future Pre-Conference Institute, Portland, OR, February 27, 2005.

“Adolescent Thinking and Learning Academy Part I session one of six reading and writing across the curriculum workshops for middle school teachers. Coeur d’ Alene, Idaho, November 16, 2004

“Inquiring Minds: Learning and Literacy in Adolescence workshop for middle and high school teachers on vocabulary and comprehension strategies. 2004 Alaska State Literacy Association Conference, Fairbanks, AK, October 15, 2004.

“Integrating Reading, Writing, and Content Learning first session of 4 workshops for middle and high school teachers., Rocky Boy Agency Middle and High School, Box Elder, MT, March 6, 2004,
March 20, 2004, November 11-12, 2004.

“A Tapestry of Tales: Shared Vision, Shared Memories, Shared Lives”, Importance of making students’ lives and experiences part of the classroom writing curriculum. Northstar Elementary School, Anchorage, AK, September, 2004.

“They Could Do the Math; It was Reading They Had a Problem With” strategies to facilitate the integration of math, reading and writing. Education Now and in the Future Conference, Portland, OR, February 10, 2004.

“Inquiring Minds: Reading and Writing across the Curriculum. Vocabulary and comprehension strategies to enhance student learning in the content areas. Education Now and in the Future Conference, Portland, OR, February 9, 2004

“The Reading –Writing Connection: When Readers Write strategies that invite students to read and write personal and family stories as they develop skill as writers. Families and Learning Conference, Helena, MT, April 14-16, 2004

“Inquiring Minds Learning and Literacy in Adolescence: Embracing Our Tradition of Excellence,
3 hour workshop for middle and high school teachers on vocabulary and comprehension strategies, Professional Development Day, Seattle Archdiocese John F. Kennedy High School, Seattle, Washington, March 26, 2004

“Inquiring Minds Learning and Literacy in Adolescence” a series of four sessions on strategies to increase vocabulary and reading comprehension for middle and high school students, Frazer School, Frazer, MT, October 28, 2003, December 2, 2003, February 6, 2004, and March 23, 2004.

“Reading Strategies for Learning and Teaching”, workshop for elementary and middle school teachers, Klickitat School District, Klickitat, WA, December 17, 2003.

“The Reading-Writing Connection: When Readers Write” three day for credit (through University of AK) workshop on the reading-writing connection Valdez, AK, November 13-15, 2003.

“Learning Subject Matter Better by Learning to Read and Write Better”, Montana State Reading Council Conference, workshop on reading and writing to increase comprehension for middle school students, Billings, MT, October 16-17, 2003.

“Inquiring Minds: Literacy and Learning in Early Adolescence” WORD Conference workshop on reading comprehension for middle school, Olympia, WA, October 10-12, 2003

“Implementing Professional Learning Teams to Address Literacy Issues at the Secondary Level.” Three day institute for secondary teachers in collaboration with NWREL Quality Teaching and Learning and Small Learning Communities, Small Learning Communities High School Grantees, Anchorage, AK, August 2003.

“Reading and Writing across the Curriculum Workshop”. Workshop on vocabulary and comprehension for middle school teachers and para-professionals. Riverside Middle School, Billings, MT, April 2003.

“Stories Are Us: When Readers Write”. Oregon Association of Comprehensive Education in Seaside, OR, January 2003.

“Supporting Student Literacy: Improving Comprehension across the Curriculum”. Oregon Small Schools Association in Monmouth, Oregon, June 2002

“Comprehension Strategies, K-12”. Southwest AK School District, New Stuyahok, AK March 2002.

“Reflecting on Classroom Practice to Improve Instruction”. AK Regional Assistance Center Institute, Anchorage, AK, January 2002

“Literacy and Action Research: Strategies to Improve Reading for All”. OACE Institute, Seaside, OR, January 2002

“Comprehension Strategies and Action Research”. Education Now and in the Future Conference, Portland, OR, October 2001.

“Comprehension Strategies in Content Area Classrooms”. Kodiak Island Borough School District, Kodiak, AK, October 2001

“Supporting Literacy Learning in the Content Areas”. Capital Reading Council Oregon Statewide Teacher In-Service Day. Parrish Middle School, Salem, OR, October 2001.

“Reading Comprehension, K-12”. Title I Conference, Great Falls, Montana, September 2001.

“Closing the Achievement Gap in Reading”. Washington State School Directors Meeting, August, 2001

“Comprehension Strategies That Work, K-4”. Lane County, OR ESD-Title I/CIM Institute, August 2001

“Curriculum Inquiry: Improving Academic Literacy: Learning and Teaching

through Reading and Writing”. Parkrose High School, Parkrose School District, Portland, OR, August 21-25, 2000. University Credit Offered through Portland State University, August 2000

“Curriculum Inquiry Cycle: Stimulating and Supporting Literacy across the Curriculum” Hutton B. Lee Middle School, Reynolds School District, Portland, OR, March 15-17, 2000.

“Reading to Learn: Strategies and Assessments”. Douglas County ESD, Roseburg, OR, February 2000.

“Curriculum Inquiry Cycle: Stimulating and Supporting Literacy”. Siletz Elementary-Middle School, Lincoln County, OR, November 1999 and “Connecting Research and Practice in Reading”, January 2000.

“Learning to Read-Reading to Learn”. North Bend School District, OR, September 24, 1999.

“Supporting Students: Reading to Learning the Content Areas”. Douglas County ESD Math and Reading Institute, Umpqua Community College, Roseburg, OR, August 1999.

“Curriculum Inquiry Cycle: Making Decisions in Reading and Language Arts”. Newton USD #373, Newton, KS, January 1999.

“Curriculum Inquiry Cycle: Examining Current Practice in Reading and Language Arts”. Newton USD #373, Newton, KS, November 25, 1998

“Curriculum Inquiry and Reading Institute for Middle School Teams”. Portland Public Schools, Portland, OR, June 29-July 1, 1998.

“Reading Research, Standards and Classroom Practice: Making Connections”. Lebanon Public Schools, OR, October 1998.

“Curriculum Inquiry: Improving Learning and Teaching”. Montana’s Partners in Teaching Conference, Billings, MT, October 1998.

SELECTED PUBLICATIONS

Inquiring Minds Learning and Literacy in Early Adolescence. (2002). Portland, OR: Northwest Regional Educational Laboratory.

The Curriculum Inquiry Cycle: Improving Learning and Teaching Second Edition (2000). Portland, OR: Northwest Regional Educational Laboratory.

The Curriculum Inquiry Cycle: Researching Our Classrooms (1999). Portland, OR: Northwest Regional Educational Laboratory (with Jane Braunger).

The Curriculum Inquiry Cycle: Creating Optimal Learning Environments (1998). Portland, OR: Northwest Regional Educational Laboratory (with Jane Braunger).

The Curriculum Inquiry Cycle: Making Decisions (1998). Portland, OR: Northwest Regional Educational Laboratory (with Jane Braunger).

The Curriculum Inquiry Cycle: Examining Current Practice (1998). Portland, OR: Northwest Regional Educational Laboratory (with Jane Braunger).

The Curriculum Inquiry Cycle: Improving Learning and Teaching (1998). Portland, OR: Northwest Regional Educational Laboratory (with Jane Braunger).

A Regional Depiction: Standards-Based Reform in the Northwest (1998). Portland, OR: Northwest Regional Educational Laboratory.

Expanding Conceptions of Giftedness, (1991). **The Bridge**, 3 (2), 3-7,
Portland, OR: Oregon Association for Supervision and Curriculum Development.

PROFESSIONAL ORGANIZATIONS

Association for Supervision and Curriculum Development

International Reading Association

National Council of the Teachers of English

Oregon Reading Association

Julia Leigh Peck

Primary Areas of Expertise

College teacher, middle school teacher, & curriculum coordinator for mathematics
Development & implementation of professional development
Training & supporting mathematics teachers, administrators, facilitators and coaches
Curriculum writing and alignment
Materials review, adoption, ordering and implementation
Writing position papers & grants
Budget preparation, documentation and responsibility

Education

Ph.D. Candidate, Washington State University, Pullman, WA.
Program Administrator Credentials, Washington State University 2003.
Teacher Certification, Washington State University, Pullman, WA, 1990.
M.S., Central Washington University, Ellensburg, WA; Mathematics (with emphasis in Statistics), 1973.
B.A., Washington State University, Pullman, WA; Mathematics, 1971.

Employment

2004 – present Senior Program Advisor
Northwest Regional Educational Laboratory/Portland, Oregon
Center for School and District Improvement

Lead the effort to develop OTE Focus on Math, work with teams to design and implement math improvement strategies, synthesize research on mathematics education and instruction into practical applications for teachers, write and

edit materials to support training and technical assistance to schools engaged in school improvement, provide training and technical assistance directly to schools, coordinate efforts with other programs and units of the Laboratory to promote the NWREL mission and encourage a climate of professional growth.

1997 – 2004 Mathematics Coordinator
(K-12 Coordinator 1997-1999, Secondary Coordinator 1999-present)
Spokane Public Schools/Spokane, Washington

Coordinated and facilitated professional development in mathematics, leadership on committees for curriculum development and materials adoption, assisted in hiring of mathematics teachers and facilitators, collaborated with other curriculum coordinators and building leaders, communicated with members of community, collaborated with higher education and business community associates in the Spokane area, participated in state efforts to improve the teaching and learning of mathematics.

1991 – 1997 Mathematics Teacher
Kelso School District/Kelso, WA

Taught accelerated, remedial and standard classes in pre-algebra, algebra and geometry. Acted as math/science department chair, Natural Helper advisor, active member of district curriculum and assessment committees.

1987 – 1990 Adjunct Instructor
Lower Columbia College/Longview, WA

Taught college level and adult basic education mathematics courses.

1986 – 1987 Member of the team developing the list of Core Competencies for Phase I of the Core Competencies Project
Washington State Adult Basic Education

Actively participated in statewide development of Adult Basic Education curriculum, helped plan the summer conferences for ABE teachers.

1982 – 1986 Adjunct Instructor
Grays Harbor College/Aberdeen, WA

Taught college level, remedial and adult basic education mathematics courses.

1981 – 1984 Adjunct Instructor
City University/Bellevue, WA

Taught graduate level courses in business statistics and operations management.

Professional Organizations and Community Service

National Council of Teachers of Mathematics
National Council of Supervisors of Mathematics
Washington State Mathematics Council
WSASCD
Mortar Board
Program Committee, NCTM Regional Conference, 2000
Program Chair, Northwest Mathematics Conference, 2004

LINDA GRIFFIN

Primary Areas of Expertise

Standards-based teaching in mathematics education
Professional development
Gender equity

Education

Doctoral Candidate (Ed.D.) in Educational Leadership, Northern Arizona University, Flagstaff, anticipated completion in 2005
Master of Arts in Teaching and Teacher Education, Mathematics Education, University of Arizona, Tucson, 1994
Bachelor of Arts in Mathematics, University of California, Davis, 1981

Employment

Northwest Regional Educational Laboratory, Portland, OR

Mathematics and Science Program Advisor

June 2004 – Present

- Provide leadership in designing effective technical assistance and training on mathematics and science curriculum, instruction and assessment.
- Provide on-site technical assistance and training services to regional and national clients in mathematics and science.
- Develop new services and projects to expand the capability and expertise of NWREL.

Catalina Foothills School District, Tucson, Arizona

Teacher of mathematics

1982-1994 and 2002-2004

- Taught mathematics courses at the middle school and high school level.
- Served as instructional team leader for a team of middle school teachers focused on improving mathematics instruction.
- Served on district committees for mathematics curriculum development and adoption.
- Served as grade-level team leader and department head.

Department of Mathematics, University of Arizona, Tucson, Arizona

Program Facilitator

1998-2002

- Coordinated implementation of NSF-funded projects focused on gender equity and parent involvement targeting economically disadvantaged students particularly Mexican-American and Native American.
- Provided professional development for educators involved in these projects.
- Developed and taught a Math for Parents course focused on rational numbers.

Department of Mathematics, University of Arizona, Tucson, Arizona

Lead Support Teacher

1994-1998

- Coordinated implementation of NSF-funded projects focused on focused on teacher enhancement at grades K – 8.
- Provided professional development for educators involved in these projects.
- Taught mathematics content courses for preservice and inservice teachers.
- Served as a peer coach for teachers in grades K-8.

Projects/Activities

Completed Sheltered Instruction Observation Protocol (SIOP) Trainings, Levels I and II

Served as a Curriculum Advisory Team member representing Montana Migrant Education Program for Project MATEMATICA (2004-2005)

Planned and delivered workshops for teachers in grades K – 8 in mathematics including sessions for Pima County School Superintendent's Office, Tucson, Arizona.

Taught a mathematics content course for preservice teachers, including sections designated for bilingual educators.

Planned and implemented educational mathematical activities for Mexican American and African American middle school students in Carnaval Matemático, NSF-funded project.

Co-taught courses for middle school teachers in Making Everybody Count, NSF-funded project

Served as Math Contest Coordinator for the Arizona Association of Teachers of Mathematics (AATM) statewide Math Challenge for sixth graders

Recipient of Catalina Foothills School District Program for Excellence Award

Recipient of Presidential Award for Excellence in Mathematics Teaching in Arizona, 1988 and 1990

Publications

Paraeducator Professional Development Curriculum, Module V: Assisting the Teacher in the Instruction of Mathematics
Northwest Regional Educational Laboratory, 2005

***What are my chances? Exploring the laws of probability*, Instructional Fair/TS Denison, 1998**

***Problem of the week: A fresh approach to problem solving* (3 volumes, grades 6, 7, 8) Instructional Fair/TS Denison, 1998**

***Thinking about Fractions, Decimals, and Percents*, a “Math for Parents Course”, MAPPS Project, Department of Mathematics, University of Arizona**

Professional Organizations

National Council of Teachers of Mathematics
Arizona Association of Teachers of Mathematics (executive board 1990 – 1994)
Association for Supervision and Curriculum Development

Appendix D: Reference List

Reference List

- National Council of Teachers of English (1998-2006). Standards for the English Language Arts. Urbana, IL:NCTE
<http://www.ncte.org/about/over/standards/110846.htm> 10/20/2006 9:46 AM
- National Council of Teachers of Mathematics (1989). Curriculum and Evaluation Standards for School Mathematics. Reston, VA: NCTM
- National Council of Teachers of Mathematics (2000). Principles and Standards for School Mathematics, Reston, VA: NCTM
<http://standards.nctm.org/document/appendix/numb.htm> 10/20/2006 9:50 AM
- Webb, N. L. (1997). Determining alignment of expectations and assessments in mathematics and science education. National Institute for Science Education, Vol. 1, No. 2.
- Webb, N. L. (April 1997). *Research Monograph No. 8: Criteria for alignment of expectations and assessment in mathematics and science education*. Washington DC: Council of Chief State School Officers.
- Webb, N. L. (1999). *Research Monograph No. 18: Alignment of science and mathematics standards and assessments in four states*. Washington, DC: Council of Chief State School Officers.
- Webb, N. L. (2002). *Alignment Analysis of State F Language Arts Standards and Assessments Grades 5, 8, and 11*. Washington DC: Council of Chief State School Officers.